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Original Communications.

NITRATE OF SILVER AND OTHER SALTS OF SILVER IN THE TREATMENT OF INFLAMMATION OF THE MUCOUS MEMBRANE OF THE UPPER RESPIRATORY TRACT.

BY E. B. GLEASON, M.D.,

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At one time nitrate of silver one to twenty grains to the ounce of powdered starch or talc was somewhat extensively used in the treatment of atrophic nasal catarrh. When powders of this description are sniffed into the nose or deposited upon the nasal mucous membrane by means of a powder-blower, they act as irritants and provoke a watery discharge which washes away and prevents the accumulation of semi-inspissated and decomposing secretions.

The method of treatment was for the physician to see the patient once or twice a week, and after cleansing his nose to insufflate powdered starch containing a sufficient proportion of nitrate of silver to cause momentary smarting. Ten to twenty grains to the ounce was usually sufficient for the purpose. The patient was directed to spray his nose with

Dobell's solution once or twice a day, and sniff into it every three or four hours a little powdered starch containing one or two grains of nitrate of silver to the ounce.

This method of treating atrophic rhinitis was fairly successful in correcting the fetor of the breath, and with advantage can be employed at the present time when the patient is unwilling to submit to more modern methods. However, it is well to substitute stearate of zinc for the starch of the older formula; and because the latter powder is very light and bulky, we can use only a drachm for each ounce of starch.

Nitrate of silver fused upon the end of a silver probe is occasionally used for searing the stumps of polyps that have been removed with a snare or for cauterizing exuberant granulations after any intranasal operation; but because of their irritating effects solutions of nitrate of silver are rarely employed inside the nose. However, organic salts of silver may be used to advantage as astringents and antiseptics. They are unirritating to most nasal mucous membranes in solutions of twenty to thirty grains to the ounce, while their bactericidal properties are well marked.

However, as an astringent to the mucous membrane of the nose, the extract of suprarenal capsules or its newly discovered alkaloid adrenalin is the most powerful known. The alkaloid is active in the strength of 1 to 10,000 parts of water, and within sixty seconds after its application blanches the nasal mucous membrane to a creamy white.

Adrenalin 1 to 5000, or the ten-per-cent watery extract of dried suprarenal capsule, applied to the nasal mucous membrane every two hours, either as a spray or by means of pledgets of absorbent cotton saturated with the solution and placed within the nose, furnishes the best local treatment of such diseases as hay-fever and nasal hydrorrhea.

In the auropharynx solid silver nitrate, when applied to moist tissue, is a feeble cauterant, producing a superficial slough. Solutions of silver nitrate produce such very superficial sloughs that they may be classed as irritants; or, when very diluted, as stimulating astringents and antiseptics. The antiseptic properties of the silver compounds should not be lost sight of. If a silver wire be allowed to remain in a culture medium, many of the more common bacteria cease to grow in the immediate vicinity of the silver.

When a solution of silver nitrate is painted upon a mucous surface it is decomposed, and organic silver compounds are formed. These are further decomposed, with the final result of the formation of argentic oxide, which, if in sufficient quantity, stains the tissues a characteristic bluish-black color. Nitrate of silver is an irritant; the organic compounds resulting from its application to mucous surfaces are, however, sedative.

Whether the irritant or sedative effects of silver nitrate predominate, depends largely upon the character of the epithelial layer of the mucous membrane to which it is applied. If a sixty-grain solution be painted upon the posterior wall of the pharynx the irritating quality is manifested and produces discomfort, persisting for some time. If, however, this solution be painted upon inflamed tonsils and the inflamed lateral wall of the pharynx, the primary irritant qualities of the nitrates are scarcely perceptible, and the procedure is followed by a sense of great relief and comfort. Painting the lateral walls of the pharynx with a sixty-grain solution two or three times a day is one of the best methods of aborting acute pharyngitis and tonsillitis. The reddened parts are at once blanched, partly as the result of the astringent effects of the silver and partly as the result of the formation of a closely adherent organic compound of the silver. The sedative effects of the application are so marked that the patient is usually able to at once swallow without much discomfort. The posterior wall of the pharynx should then be painted with a twenty-grain solution of protargol. This treatment, if repeated twice or thrice a day, for two or three days, will in a large proportion of cases abort phlegmonous tonsillitis.

In follicular tonsillitis the abortive treatment of the disease with a sixty-grain solution of nitrate of silver is equally effective, providing the remedy is applied to the affected tonsillar crypts after they have been freed of pseudomembrane.

The following cases will illustrate the method of procedure:

Case I.—Lady about thirty years of age, who had suffered from several attacks of follicular tonsillitis, stated during a morning office call that her throat had been slightly sore since the previous evening. The fauces were red and swollen, and four infected follicles of the right tonsil were filled with a croupous membrane. The nozzle of a Blake's middle-ear cannula was inserted into each of the infected follicles, and a few drops of a fifteen-volume solution of peroxide injected.

The procedure was repeated until most of the pseudomembrane was dissolved or ejected. A few fibers of absorbent cotton were wrapped about the tip of an Allen's probe, which was then bent to a right angle, dipped into a solution of nitrate of silver sixty grains to the ounce, and inserted into the crypts of the infected tonsil. The surface of both tonsils was then painted with the sixty-grain solution of silver nitrate, and the posterior wall of the pharynx with a twenty-grain solution of protargol. At the evening visit the treatment was repeated. The next morning the appearance of the fauces was practically normal, and the treatment consisted in painting the surface of each tonsil with the sixty-grain solution of silver nitrate.

CASE II.—An actress had had chilly sensations for the past twenty-four hours; temperature 101.5°; marked depression and swelling of the cervical glands of left side. She had congested fauces and a slough-like pseudomembrane on the lower portion of the left tonsil, a culture from which sent to the Philadelphia Board of Health disclosed the presence of the Klebs-Loeffler bacillus.

Her throat was sprayed with fifteen-volume peroxide of hydrogen by means of an atomizer, the nozzle of which was placed during the spraying within a half-inch of the pseudomembrane. As much as possible of the surface of the pseudomembrane was removed by rubbing the membrane with cotton wrapped about the end of an Allen's probe and saturated with peroxide. Both tonsils and the lateral walls of the fauces were then carefully and thoroughly painted with a sixty-grain solution of nitrate of silver. This treatment was repeated thrice on the first day, twice on the second day, and once on the third day, when convalescence was fully established. However, in the meantime the patient's throat was sprayed with peroxide by the patient's friend every two hours in the manner described above.

CASE III.—Wife of a physician, seen within the past two weeks; sore throat since the day before; temperature 102°; marked depression; one of the cervical glands of the left side swollen during past twenty-four hours to the size of a pigeon's egg; fauces congested; crypts of both tonsils contained pseudomembrane; slough-like membrane on lower portion of each tonsil, that of the left extending to the anterior pillar. Local treatment similar to that of Case 2; convalescence on third day. No culture tests were made.

Because the Klebs-Loeffler bacillus is sometimes found in an apparently normal pharynx, and because the so-called walking cases of pseudomembranous rhinitis and pharyngitis are by no means rare in which cultures prove the presence of the Klebs-Loeffler bacillus, I am not prepared to maintain that either Case 2 or 3 was diphtheria in the clinical sense of the word, and that that disease was aborted by the use of the treatment described. As a matter of fact, painting the tonsils with silver nitrate has failed to abort tonsillar diphtheria in children in the few cases in which I have seen the disease early. The three cases have been quoted to show the value of applications of strong solution of silver nitrate (sixty grains to the ounce) to the lateral walls of the fauces. When painted upon this portion of the throat strong solutions of silver nitrate possess a sedative, an astringent, and an antiseptic action, the value of which cannot be overestimated.

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*POSTOPERATIVE PNEUMONIA COMPLICATED BY EMPYEMA, WITH REMARKS ON THE PROPER TREATMENT OF THIS CONDITION.**

BY PHILIP MARVEL, M.D.,
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The following questions are suggested by my experience with a case of this character:

1. What is the probable percentage of postoperative pneumonia?

2. Should evacuation, by aspiration or by drainage, be recommended before resolution is complete?

3. Does the absence of the characteristic physical signs in pneumonia argue in favor of the inadequacy of said signs to accurately indicate the degree of danger in the disease?

In answer to the first question I find the literature on the subject differing somewhat as to the percentage of cases in different countries, and also in different localities in our own country; but since this is true of many diseases, it indicates little more than the probable atmospheric and hygienic influences that obtain in the respective territories referred to.

Authorities are in the main agreed as to the chief causative factor in this as in other forms of pneumonia, viz., the active invasion of the lung by the micrococcus lanceolatus or dip-

* Read before the Atlantic City Academy of Medicine, Feb. 8, 1901.

lococcus of pneumonia of A. Fraenkel, which may or may not be associated with other cocci, as the staphylococcus and streptococcus pyogenes, etc., but are widely at variance as to the most constant exciting cause. After a careful review of a number of the probable contributing agencies in this form of pneumonia, among which may be stated undue exposure during or after operation, previously existing history of alcoholism, bronchial irritation from the anesthetic, age, race, and occupation, I am forced to the conclusion that though these are different in their bearing upon the individual, they are particularly uniform in the respect that they at least all tend to lower vital force and thus lessen the power of resistance, which lessened resistance of the patient, more than any specific effect of the anesthetic, is in my judgment the cause most favoring the development of the micrococcus, and absorption of the toxin.

Pneumonia after surgical operations was a common cause of death prior to the discovery of anesthesia, but to-day it is comparatively rare, so much so that there is truly a question as to whether or not anesthetics do not directly or indirectly lessen, in a slight degree, the liability to the disease.

Reference to Cheevier's papers of 1843 by Erichsen shows that in forty-one deaths after surgical injury, no less than twenty-three subjects presented signs of pneumonia. In contrast to this, modern surgery, as shown by Silk, presents only one case in 5000 operations. Prescott in analyzing the Boston cases estimates that in 40,000 cases of etherization there were only three instances of acute pneumonia.*

At the Presbyterian Hospital, New York, in the ten years from 1887 to 1897, there were 4914 administrations of ether followed by 17 pneumonias, 9 of which were fatal; 689 administrations of chloroform with 8 pneumonias, 7 fatal; 116 administrations of ether and chloroform with 2 pneumonias, both fatal.

It might seem from these figures that pneumonia after anesthesia is more often fatal than under other conditions, and also that the administration of chloroform is more likely to be followed by a fatal attack than when ether is used. E. C. Schultze, however, from whose report the above statistics are taken, does not believe that this large mortality following chloroform inhalation is due so much to the anesthetic chosen as to the fact that the great number of cases of malignant disease of the mouth, and of the respiratory tract, are among those to whom chloroform is given.*

J. M. Anders reports 12,842 etherizations with thirty cases of lobar pneumonia and thirteen deaths (6807 being gynecologic cases, with twenty-three pneumonias, or .33 of one per cent, as against .23 of one per cent for the entire number).† This difference gives rise to an interesting question, which however is not pertinent to the subject of this paper.

A glance at some of the foreign statistics would indicate that pneumonia seems to be more frequent in England and Germany than in this country. In the clinic at Erlangen during the period 1887 to 1894 there were thirty-eight ether narcoses with six pneumonias, of which four were fatal. During the same period there were 300 narcoses with chloroform with fourteen pneumonias, four being fatal.

The foregoing studies, collectively considered, warrant the following deduction, namely, that the difference of percentage given by various writers on postoperative pneumonia varies so widely that no percentage rate is as yet determinable, but that an estimate may be stated as ranging between .12 and .33 of one per cent, and the fatal cases between .01 and .09 of one per cent.

Were it not for the fact that empyema is an unusual complication before resolution has partially or completely taken place, there would be no need for discussing the second question, but since I can find but few references to the treatment of this condition, I take it as an evidence of its rarity, and thus the reason for considering it. I do not advise aspiration till the crisis has passed, unless the embarrassment to the breathing and circulation, or evidence of danger from the toxemia, should be such as to render relief imperative. Nature has already fairly fortified herself against invasion by the poison from the purulent fluid, and the danger from further absorption is unlikely to be greater than the disturbance brought about by the operation. If such a procedure as aspiration is followed by dangerous and even fatal results, in cases where the crisis is already past, may we not reasonably expect less favorable

*Vol. xvi, 20th Century, p. 84.

*Vol. xvi, 20th Century, p. 84.

† *University Magazine*, August, 1898.

results when the respiratory area is much lessened, and the circulation more embarrassed? I am not sure but that the sudden removal of the fluid under such existing circumstances, by relieving the intrathoracic pressure, favors more rapid pulmonic circulation, thereby changing the status of both the circulatory and nervous equilibrium, and thus rendering the absorption of pus toxin more easy and probable. Whether this be a correct explanation or not J. M. Anders sounds a note of warning against too early aspiration or surgical interference in these cases when he states: "I would add that in pleuropneumonia aspiration is not well borne, according to my observation; hence, unless urgently needed, I would postpone this procedure until the crisis has passed." If objection is to be raised against this means of removal of the fluid, certainly that of more active removal by drainage must necessarily be met with greater objections for the same reasons, though in accord with the teaching that pneumococci empyema should be operated upon at once, where resolution has taken place, until there is accumulative evidence to the contrary. I must add my approval of the cautious recommendation made by the author quoted.

Referring to the third question, there is perhaps no disease which has more distinct and characteristic signs than pneumonia, and it is but natural that we look for, and to some extent rely upon, these physical evidences in forming an estimate of the gravity of a particular case of consolidation, which condition may be taken as the one sign pointing more particularly to the severity of an attack.

Though the area of dulness and bronchial breathing necessarily is to be considered, and to some degree at least represents a measure of the peril to which a patient is exposed, we cannot always be quite prepared to outline and define the degree of the involvement. It undoubtedly happens to all of us, more frequently than is altogether comfortable, that an autopsy presents unexpected revelations as to the true conditions of the lungs, as against the changes supposed to have taken place. In many persons the respiratory sounds are quite feeble in health, even almost inaudible, except by forced inspiration. In such persons the initial crepitus may escape detection and the bronchial breathing be anything but well pronounced. Further embarrassment may be interposed by thick coverings of adipose and well developed muscular tissues. Hence, under the most favorable circumstances, and with the best trained ears, it must be admitted that our resources with auscultation and percussion fall lamentably short of supplying unquestionable data for an accurate appreciation of all that is taking place in a pneumonic lung, and our present means of satisfactorily interpreting the same must often bring us into an embarrassing and puzzling state of doubt and uncertainty, from which predicament we are but partially and too often humiliatingly relieved by nature's forces alone. Who of us is there who has not puzzled over varying and uncertain sounds? Do we always feel confidently equal to estimating the thickness of the pleura or the amount of fluid present through which the enfeebled respiratory sounds in these cases must be heard? Add to the difficulties already mentioned, the presence of pulmonary emphysema, infarction, abscess, or beginning tuberculosis, and it will readily be seen, valuable as the physical signs undoubtedly are, that they alone are quite insufficient for a full and accurate estimation of the changes taking place in a pneumonic lung. Though we may in many cases estimate the full area of consolidation present, we must still remain uncertain as to its import, for this area is necessarily less than the limit of that in which the toxin is being formed. This statement is corroborated by referring to the words of Andrew H. Smith, of New York, who says:

"So long as the disease is advancing in the lung there will always be a zone outside of the consolidated area in which the amount of exudation in the air cells will not be sufficient to cause notable signs, but in which nevertheless an active formation of toxin is progressing. The slightest film of fibrin upon the wall of the vesicle will harbor a colony of pneumococci, whose toxin will be under the very best possible conditions for absorption. Unlike the fully filled alveoli, these vesicles will have an active circulation going on in their functional capillaries, and the toxin as it is formed will be immediately taken into the circulation. The younger the organisms the more virulent is the poison formed by them, so that while cultures taken from the center of a consolidated area show little toxicity, those taken from the circumference of such a patch present the maximum of virulence."

After so concise an authoritative statement as the above, I have only to add that whilst the physical signs are most important in diag-

nosing the disease, I am fully convinced that they are not always proportionate to nor do they represent the measure of gravity in a case, and that too much stress cannot be laid upon the presence and behavior of the toxins and their influence in pneumonia.

CHLORETONE IN DUSTING POWDERS.

By E. Hollingsworth Siter, M.D.,

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The use of chloretone in dusting powders for painful granulation wounds has been wonderfully successful as far as analgesia is concerned. It does not seem to delay union or granulation, and it can be used in combination with almost any dusting powder. In the cases outlined below it was used with boric acid. It cannot be said, however, to hasten granulation, and, as far as I have observed, all it does is to mitigate or entirely allay pain in the majority of cases. This, after all, is a good deal gained for the patient and the physician.

I watched it carefully in the cases reported and admit that I was much surprised at its action. I attempted to use chloretone in solution as a local anesthetic, with extremely poor results; indeed, I was unable to obtain any anesthesia. In defense I should say that as the results were so discouraging in my first trials I have not tried the preparation often.

Chloretone, I think, has a great future, at least in minor surgery, as an analgesic dressing. I cannot see why it should not be as successful in major surgery when it may be prudent at all to use a dusting powder.

Some of the cases in which I have tried chloretone, and the results obtained, are as follows:

Case I.—L. D., aged eleven years, operated on for cervical adenitis. After operation wound became infected; it granulated slowly and was painful. January 14, chloretone powder was used. Patient returned January 16, complaining much less of pain; wound was granulating more rapidly. January 18, pain diminished and restoration seemed hastened. January 21, still improving and no pain. From this date healing was uneventful and painless.

Case II.—P. J. presented himself January 14 with a large granulating ulcer on dorsum of penis about the size of a quarter of a dollar, which was diagnosed as a chancroid. He complained of pain. Chloretone powder was used freely. January 16, patient claimed pain was much diminished; granulation was progressing. January 18, there was no pain, and ulcer was healing rapidly. Progress thereafter was painless and rapid. There was no glandular involvement.

Case III.—C. N., aged three years, was presented with phimosis and adherent prepuce. January 14, was circumcised; chloretone powder was used as a dressing. January 16, penis was dressed. He had not complained of pain or soreness, and while being dressed he exhibited no tenderness. Recovery was devoid of pain and was rapid.

Case IV.—M. M. Infected wound of dorsum of foot; complained of distress from his shoe, which was cut out over his injury and did not seem to exert pressure. January 14, chloretone powder was used as a dressing after the wound was thoroughly cleaned. After this his pain disappeared, and granulation was quick and uneventful.

Case V.—R. Z. was circumcised for recurrent herfer. Chloretone powder was used; after the first stinging of the operation ceased, he felt no inconvenience whatever from the wound. Recovery in five days.

Case VI.—J. H. Granulating wound from severe wound of knee; extremely painful, particularly from any movement of the part. January 17, chloretone powder was used as a dressing. January 19, pain was much lessened, both while quiescent and on movement. January 21, pain practically gone. Recovery uneventful and painless.

Case VII.—D. G. Infected wound freely opened and cleaned out; chloretone powder used as a dressing. There was no pain from the incision one-half hour after dressing. January 21 (two days later), wound was dressed; there was no pus; wound was found filling in nicely, and there was scarcely any pain. January 23, no pus; granulation healthy and wound painless. January 25, condition unchanged from last dressing. Recovery uneventful and satisfactory.

Case VIII.—F. S. Abrasion of forearm as large as the palm of the hand. Rather painful granulation; healthy. January 23, chloretone powder as dressing. January 25, pain had almost disappeared; granulation improved. January 28, wound doing well; no pain. January 31, wound almost healed;

no pain. February 2, wound practically healed.

CASE IX.—M. K. Large varicose ulcer on anterior surface of leg; very painful; had been strapped. January 14, chloretone powder was dusted on granulating surface before straps were applied. January 16, patient returned and said pain was much lessened; powder and straps reapplied. January 18, pain relieved entirely; ulcer doing well. January 21, no pain; granulation rapid. February 4, during this interval patient had been dressed regularly and did not complain of discomfort. Ulcer has practically healed.

CASE X.—H. M. Suppurating bursitis of knee. Bursa was opened and thoroughly cleaned out on January 15, then dressed with chloretone powder. January 16, complained of some pain; wound again dressed with powder. January 18, pain much diminished and wound doing well. January 21, no pain, and granulation healthy. Recovery uneventful and painless.

CASE XI. — Lacerated wound of scalp; head shaved, wound thoroughly cleaned out, and chloretone powder applied. January 21 (two days later), patient had no discomfort and good union was taking place. January 23, wound in good condition; no discomfort. January 25, there was good union, and patient was discharged with collodion dressing.

CASE XII.—M. G. Ulcerating gumma of forearm; slough was removed, and wound granulated slowly; there was slight pain. January 21, wound granulating more rapidly and pain diminished. January 24, wound filling in nicely; pain disappeared. January 27, wound doing well, and straps applied over powder. January 31, ulcer healed. This treatment of course was in conjunction with mixed treatment.

CASE XIII.—E. C. Varicose ulcer over lower third of tibia; pain severe. January 14, chloretone powder and strap were used. January 16, pain still severe but slightly diminished; same dressing applied. January 18, ulcer decidedly sluggish; was stimulated with silver nitrate, chloretone powder, and straps. January 20, pain much lessened; granulation more healthy. January 23, pain almost disappeared; ulcer doing nicely. February 4, ulcer healed.

CASE XIV.—D. H. Chancroids at preputial orifice. Circumcised, and dressed with chloretone powder. January 23, has had no pain on line of incision and union has taken place. January 25, no pain and good union. January 27, no pain, and patient discharged. There was no infection and no glandular involvement.

CASE XV.—H. C. Circumcised for phimosis, under cocaine anesthesia. January 30, in spite of the usual edema of the foreskin, there was no pain after operation, and the patient had no discomfort. February 1, union by first intention; there has been no pain. February 14, patient discharged.

CASE XVI. — C. S. Suppurating bubo from chancroid; bubo opened and cleaned out; chloretone dressing. January 31, no pain; wound clean and progressing favorably. February 2, there had been no pain, and granulation was healthy. February 4, wound was painless, and filling in. Patient is still under treatment, but is having a rapid and painless recovery.

CASE XVII.—J. C. G. Tubercular syphilide over right scapula, and ulcerating gumma of left buttock. Patient complained of some pain about the lesion over the scapula. Chloretone powder was used. January 28, patient said pain was absent; lesions looked improved. January 29, no pain; lesion improved. January 31, condition improved. Patient is still under treatment, but his condition is very much better by the use of chloretone dressing and iodide.

CASE XVIII.—C. F. had a large sebaceous cyst of scalp which was removed; chloretone dressing was applied. January 30, there had been no pain at incision, and there was excellent union. February 1, no pain. Patient discharged with collodion dressing.

CASE XIX.—G. H. Bubo both sides from chancroids. January 30, glands removed from both sides; chloretone dressing. January 31, there was slight oozing from the incisions, but no pain. February 1, wounds perfectly clean; no pain, and good union expected. February 3, condition of wounds good; no pain. February 5, condition good, and an early recovery looked for.

CASE XX.—N. B. Lipoma of the back removed; chloretone dressing. January 29, there had been no pain; union was excellent. January 31, no distress; wound in good condition. February 2, wound had practically healed. February 5, patient discharged.

CASE XXI.—C. R. Ingrowing toe-nail removed; dressed with chloretone. January 30, patient had had very little pain, and wound looked well. February 1, patient had no pain, and granulation was well on. February 3, there was no pain, and wound was healing nicely. An early recovery is looked for.

CASE XXII.—H. B. Chancroid, extremely painful; some glandular involvement; chloretone was used. January 28, pain was diminished; buboes seemed to be abating. January 30, pain much less; glands reduced. February 2, pain absent; chancroids healing nicely, and buboes abated. February 5, patient still under treatment, but doing very well.

CASE XXIII.—F. P. Infected wound of thumb; opened and thoroughly cleaned out, then packed with gauze. Patient returned next day complaining of severe pain; packing was removed; wound thoroughly cleansed and dusted with chloretone powder. Sterile gauze and bandage applied; within fifteen minutes the pain had entirely disappeared. Recovery was painless and uneventful.

CASE XXIV.—H. C. presented himself with a large suppurating bubo which had opened spontaneously. There was a quantity of necrosed tissue round the opening. The opening was enlarged, the remaining infected glands removed, and the necrotic tissue trimmed off, leaving quite a large surface to granulate. The surface was dusted with chloretone powder and dressed with gauze. Patient experienced no pain, and the wound granulated nicely. Recovery was rapid.

CASE XXV.—W. H. spilled a quantity of pure carbolic acid on his left thigh, causing a severe burn of oblong shape and about five inches long by four wide. The surface granulated slowly, and was extremely painful. January 14, chloretone powder was used for the first time, the wound then being about three weeks old. The cessation of pain was almost instantaneous. The wound is now skinning over slowly and painlessly under chloretone.

CASE XXVI.—O. F. Amputation of index-finger, right hand, at metacarpophalangeal articulation, for crush. The wound was dressed after operation with chloretone powder. There was absolutely no pain or soreness along the line of incision in spite of the fact that there was some secondary hemorrhage. Convalescence was painless and fairly rapid.

CASE XXVII.—C. Y. Recurrent balanoposthitis with phimosis. Patient was circumcised under cocaine anesthesia and dressed with chloretone powder, with absolutely no pain or discomfort from the incision. Recovery in six days.

CASE XXVIII.—H. C. Razor cut of thigh, requiring eight sutures to close the wound, which was dressed with chloretone powder. Healing was painless and by first intention.

CASE XXIX.—E. S. Infected wound of forearm was opened, thoroughly cleaned out, and dressed with chloretone powder. There was practically no discomfort from the wound, which is now granulating nicely.

CASE XXX.—S. B. Badly lacerated scalp; six stitches were taken, and the wound was dressed with chloretone powder. There was no pain during convalescence, although the wound granulated slowly owing to the patient's habits.

CASE XXXI.—D. H. Phimosis and adherent prepuce. Patient was circumcised under cocaine anesthesia. Dressing of chloretone powder was used, and although in places the prepuce had to be dissected from the glans, leaving considerable granulating surface, there was no pain. Patient suffered no discomfort; and the wound healed promptly.

CASE XXXII.—C. F. presented himself with condylomata about the anus. Patient complained of severe pain, particularly on defecation. Chloretone powder was freely used. The patient experienced great relief after the application, and under specific treatment the lesions disappeared without further discomfort.

AS TO THAT IMPORTANT FUNCTION OF THE BLOOD IN HEALTH, ITS ALKALINE REACTION AND THE REDUCTION OF ITS ALKALINITY IN CERTAIN PATHOLOGICAL CONDITIONS.

BY R. WERNIGK, M.D.,
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I wish to state that I am not offering anything new to the profession; I intend to state facts established long ago, but which, according to my opinion, are not sufficiently recognized in their importance by the general practitioner. The deductions made by me from these facts are based on three well recognized chemical and physiological conditions, and if the reader keeps this in view, he will have no difficulty in following my statement.

First, it is an established chemical fact that all organic substances in the body oxidize best in alkaline media. Many organic substances will not oxidize at all at the body temperature, unless in the presence of a free alkali.

Secondly, normal perfectly oxidizing blood is always alkaline.

Thirdly, in a large number of diseases, to

be mentioned later on, the alkalinity of the blood is diminished more or less, and hence the oxidizing power of the blood, the cells, and the glandular structures, which derive their alkalinity from the blood, is also diminished. In these advanced days of blood-count, hemoglobin estimation, and the constant throwing on the market of various hemoferric preparations, one more lauded than the other, it seems to me that at least some attention should be paid to that important factor through whose agency the oxidizing power of the blood is vastly increased, and its red corpuscles enabled to unite more readily with oxygen, and thus are in a better condition to establish normal metabolism. Animal existence is due entirely to continuous oxidation, and in order that the oxidation be perfect, it is, as we have seen, absolutely necessary that the blood, and hence the body cells, should be normal, and if normal, they must be alkaline to the normal extent.

As far back as 1865, the great thinker Von Liebig, the father of our organic chemistry, stated that the presence of free alkali, sodium, and potassium in the blood played an important part in blood-making and in the functions of the blood, and that by virtue of its alkalinity the blood acquired the following characteristics:

1. The alkalinity of the blood enables it to dissolve into a clear liquid the oxides of iron and other metals.

2. Its alkalinity prevents the blood from oozing through the walls of the blood-vessels, in the form of serum or blood, and is the cause of the blood flowing smoothly through the finest capillaries.

3. Its alkalinity prevents various factors from coagulating the albumin of the blood, and in fact, when the alkali is present in a certain proportion, not even heat will coagulate the albumin of the blood.

4. Its alkalinity keeps the constituents of the blood in a fluid condition, and by it the power of absorption for gases of the blood serum is increased. The alkalinity of the normal blood is due to the presence of sodium phosphate (Na_2HPO_4), and sodium bicarbonate ($NaHCO_3$); also to the alkaline albuminates. The degree of alkalinity is estimated variously by different investigators as containing from 182 to 600 milligrammes per 100 cubic centimeters of blood. This leaves a wide margin, and simply shows that no perfect method for the estimation of the alkalinity of the blood has yet been formulated. There are various methods used in estimating the alkalinity of the blood, of which Löwy's is the simplest; but for all practical, especially bedside, tests, the reaction of the urine is a simple indicator, as a rule, of the degree of alkalinity of the blood. The acidity of the urine is reduced as the blood gets more alkaline, and *vice versa*. The blood is as a rule more alkaline, and the urine less acid, and even alkaline, some hours after a meal or after a cold bath.

A great elimination of uric acid, however, may render the urine very acid, temporarily, without diminishing the alkalinity of the blood.

It being an established fact that normal blood is always alkaline, let us now see in which pathological conditions its alkalinity is lessened.

Garrod, Roberts, Landois, and later Haig, called the attention of the profession to the lessened alkalinity in gout, chronic rheumatism, and lithemia, and ever since the administration of alkalies in the treatment of these diseases has been in vogue.

In scurvy the appetite and the custom demand vegetable acids, which are converted in the blood into alkaline carbonates and increase its alkalinity. The famous Blaud pill owes its reputation to the presence of carbonate of sodium and potassium, as pointed out long ago by Immermann.

Of late more accurate observations have been made, and looking over the works of Von Jaksch, Vierordt, Sahli, Musser, and especially Simon, I find mentioned a large number of pathological conditions in which the alkalinity of the blood is reduced.

1. In all anemias, pernicious and simple, and leukemia.

2. In most fevers, except those complicated by cyanosis and dyspnea.

3. In all cachexias.

4. In toxic conditions of the blood, as uremia, diabetes, nephritis, hepatic disease, carcinoma, and in poisoning with carbon monoxide and phosphorus.

5. In chronic rheumatism, lithemia, gout (not in acute articular rheumatism), and scurvy—in fact, in nearly all chronic conditions in which we have blood changes. Excessive exercise also diminishes it.

A neutral or much diminished alkalinity of the blood is said to have been observed in cholera, sunstroke, and apoplexy. The alkalinity of the blood is lower in women and children than in men, and increases directly after a cold bath and after meals.

In order to elucidate what I wish to say regarding the oxidation process going on in the blood, I will briefly review the change which takes place in the blood while it circulates in the body. The venous blood enters the right auricle, passes into the right ventricle, and from there enters the lungs through the pulmonary artery. In the lungs it comes in close contact with the inspired air, through the most delicate blood-vessels, which line the air vesicles, and takes the oxygen from the inspired air and gives up its carbonic acid gas, which is exhaled through the lungs. The reoxidized blood now enters the left heart, and escapes through the aorta to enter the general circulation. During the passage of the blood through the various tissues of the body, its oxygen is taken up by the body cells, and it receives from the cells in turn carbonic acid gas, which has been formed by the burning up of the food in the cells. Now the cells we know are the proper seats of the vital processes, and if perfect, there is complete normal oxidation and metabolism, and that, with few exceptions, means perfect health. If for some reason or other this process of perfect oxidation is interfered with, as it certainly will be if the alkalinity of the blood is lessened and the cells are not bathed in the normal blood, then we will have a pathological condition; we will have poorer oxidation of the blood in the cells, and sooner or later in consequence poorer health; and no matter how many ferruginous tonics you pour into the system, never will the lessened alkaline blood be able to utilize them as perfectly as does normal alkaline blood. In discussing metabolism in his excellent scientific article on "Pathology" (*Medical Record*, September, 1900), Professor Levin says: "The abnormality in the metabolism of the proteids may go further yet, and the proteids may be eliminated before they are split up into nitrogenous and non-nitrogenous parts. This takes place in fevers, carcinoma, phosphorus poisoning, acute yellow atrophy of the liver." In those conditions in which the proteids are eliminated in the form of albumoses (not a perfect oxidized end product) such an abnormality in the metabolism is certainly a sign of great depression in the functions of the cells, since albumoses contain the same potential energy as the proteids themselves; consequently, the cells of the body are in a state of inanition, *though the supply of food may be plentiful.*

Von Liebig also says: "The blood contains preeminently an incombustible alkali, but the lymph and chyle also possess alkaline reaction, and it seems to be certain that not alone does the alkali give certain characteristics to the blood, but that the formations and productions of the blood depend upon its presence."

Now I have enumerated the pathological conditions in which the alkalinity of the blood has been found diminished, and as it is known as a chemical fact that the presence of the free alkali in the blood vastly improves its oxidizing power, does it not seem rational and logical that the first thing to be done in these pathological conditions of diminished blood alkalinity is to try and restore the normal alkalinity of the blood, so as to increase its oxidizing power, and enable it to properly assimilate the various foods? The beneficial effect of the saline waters is mainly due to the alkalinity of the water, and in support of this statement I take the liberty to quote from Professor Hare's System of Therapeutics, vol. i, page 521, where, in the article on "Alkaline Waters," we find these words: "Absorbed into the blood carbonate of sodium in the water augments its alkalinity and thus promotes oxidation and tissue metabolism. Under its use the urine becomes alkaline; the quantity of urea is greatly increased, while that of uric acid is correspondingly diminished. The functions of the mucous membrane throughout the body are stimulated, and according to Flechsig these waters become anticatarrhal remedies of a high order. It has generally been supposed that the alkalies increase the oxidation of fats and sugars, and to this effect has been attributed the curative action of such waters as Marienbad and Carlsbad in diabetes."

In his General Physiology, page 478, Verworn says: "Physiological chemistry has shown a difference in the living and dead cells, showing that the living substance or cell experiences, in dying, pronounced chemical changes, for the reaction of the living substance is almost without exception alkaline or neutral, and with death it becomes acid; and certain proteids that are in solution in the living alkaline cell substance, as the myosin of the muscles, experience very remarkable changes in death, as they coagulate and pass into the solid state."

In physiological leucocytosis, occurring after a meal or after a cold bath and during pregnancy, there is also an increase of alkalinity in the blood, as stated by Löwy and Richter. Masoin was able to protect

his control animals against blood-destroying poisons by injecting alkalies, which he could not do by injecting other salts. Todor also increased the resisting power of his control animals against infection by rendering their blood more alkaline. Inhalation of oxygen would certainly be more efficacious in an increased than in a diminished alkaline blood. It is of little importance what alkalies are administered; in cases of urgency they may be given intravenously or hypodermically, and I believe the beneficial leucocytosis, which according to Professor Landerer occurs after intravenous injections of cinnamate of sodium in tuberculosis, is due to the increased alkalinity of the blood; and where Kissingen and Vichy waters have reduced obesity, it is evidently due to the fact that the increased alkalinity of the blood is better able to maintain a perfect metabolism and burn up the stored-up fat which has accumulated owing to a decreased alkalinity of the blood.

In an article by Dr. Strasser, assistant of Professor Winternitz, in the November number of the *Therapeutische Monatshefte*, he states that in infectious diseases we should increase the alkalinity of the blood so as to increase its leucocytosis.

In my own blood I can run the count up to 15,000 by taking alkali, while ordinarily it varies between 8000 and 10,000.

NOTES OF A CASE OF PEMPHIGUS, PARTICULARLY IN CONNECTION WITH THE LOCAL TREATMENT.

By Arthur Van Harlingen, M.D.,

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True pemphigus is a disease of such unusual occurrence that it is only by the collection of a number of cases published by various individual observers that any generalized conclusions regarding it may be attained. No one man is likely to have a sufficiently wide experience with the disease to authorize him to speak with authority from his own observations.

I need not apologize therefore for presenting a single case of pemphigus, and for presenting this case only from the standpoint of treatment. Observations from other quarters will, I hope, follow.

John H., five years of age, was admitted to the Children's Hospital on November 27, 1899, suffering from well marked pemphigus. The eruption had appeared four days previously in the form of small blebs, and was at first supposed to be varicella.

On admission the little patient was found to present an extensive eruption of blebs of various sizes profusely scattered over the face, neck, arms, and feet, the trunk being at this time free. The lesions about the feet were umbilicated and resembled at first glance the lesions of herpes iris. They rose directly from the healthy skin, however, and none of the other symptoms of herpes iris were presented. A few blebs were sanguinolent. The child suffered from fever, with much restlessness at night.

The feverish condition was not indicated at first by a rise in temperature, since this was nearly normal on his admission to the hospital, but his condition grew rapidly worse. Delirium supervened, the temperature rose rapidly until it reached 102.4° F., varying considerably, however, and on several occasions rising as high as 103.6° F. By the eleventh day of the eruption the temperature had fallen to about 101°, but on subsequent days it rose as high as 102°. The accompanying table will show the temperature variations. They do not seem to follow any rule, but vary from time to time without any obvious connection with the state of the eruption, excepting an occasional rise with a fresh outbreak of blebs.

TEMPERATURE RECORD.

J. H.

Date.	Day of disease.	M.	E.
November 27.....	5	99.4° F.	98.4° F.
" 28.....	6	98.4	99.4
" 29.....	7	98.4	98.4
" 30.....	8	100.2	102.4
December 1.....	9	103.6	103.6
" 2.....	10	102 4	103.2
" 3.....	11	100.8	101
" 4.....	12	100.2	101.2
" 5.....	13	102	102
" 6.....	14	102	102.2
" 7.....	15	100	100.4
" 8.....	16	100.6	99.6
" 9.....	17	99 8	99.8
" 10.....	18	99.2	101.2
" 11.....	19	101.2	102.4
" 12.....	20	101.2	102
" 13.....	21	100.4	101
" 14.....	22	99	99
" 15.....	23	99.4	100.8
" 16.....	24	100 2	102.4
" 17.....	25	100.8	99.2
" 18.....	26	99	100.4
" 19.....	27	100	99.4
" 20.....	28	100.4	100,
" 21.....	29	100.8	99
" 22.....	30	99.4	100.2
" 23.....	31	99	100.4
" 24.....	32	99.4	100.4
" 25.....	33	100.8	100.2
" 26.....	34	99.2	99.8
" 27.....	35	100	101
" 28.....	36	99.4	99.2
" 29.....	37	98.8	99.8
" 30.....	38	98.6	98.6

The temperature after this never reached higher than 100°, excepting on a single occasion (101°), until January 27, when a slight relapse occurred. The disease practically came to an end by the thirty-eighth day.

On the twelfth day of the disease I instituted the following treatment:

The blebs upon the left arm, which were so numerous as to be almost coalescent, were opened widely, and pieces of lint saturated with a solution of bichloride 1:2000 were applied, being covered with paraffin paper. The lower limbs were dressed with an ointment of borated vaselin.

Within twenty-four hours the condition of the child appeared to be changed for the better. The temperature, which before the dressing was 102°, began to fall, until within a few days it stood at 99.2°. At the same time the lesions which had been dressed with the bichloride solution seemed to improve more rapidly than elsewhere, the blebs drying up and the skin beginning to assume a more healthy appearance.

Four days after the first application of the bichloride dressing the arm was well enough to apply an oxide of zinc paste, and the bichloride dressing was then applied to the other arm and to the lower limbs.

The internal treatment at this time comprised for a few days $\frac{1}{100}$ grain of strychnine daily, and later four grains of quinine daily. The delirium and weakness being marked, whiskey in the dose of f 3 j every second hour was administered at times. The patient was kept upon a milk diet.

I avoided the administration of arsenic, since this drug being regarded as a specific in pemphigus, any beneficial effects which might follow the employment of the local treatment could be attributed to the internal medicine.

During the earlier period of the treatment the child had marked brain symptoms. Delirium followed by stupor was almost continuous for some days, but with the improvement in the skin symptoms the stupor gave way to dulness, and gradually the intellectual faculties returned.

The last period of high temperature was connected with a slight fresh outbreak of the eruption—about the twenty-third day of the disease. The temperature fell to normal about the thirty-sixth day of the disease.

The condition of the skin improved steadily, and by the thirty-sixth day all eruption had disappeared. For two weeks no local treatment was employed, but after that time inunctions of olive oil containing one per cent salicylic acid were practiced daily for several weeks, after which the patient left the hospital.

About six months later he returned to the hospital with a slight relapse, the blebs being chiefly confined to the legs. Wet compresses of bichloride solution (1-to-4000) were applied for forty-eight hours, and followed by a zinc paste. Under this treatment the blebs rapidly disappeared.

The plan I have followed was suggested by the idea that the chief seat, and what might be called the laboratory, of the disease, or at least of the general symptoms accompanying it, lies in the blebs.

We do not know enough of the pathology of pemphigus to speak with any certainty regarding this matter, but there is good reason to suppose that in the blebs, when once fully developed, there goes on a formation of septic matter the absorption of which gives rise to the increase of temperature and other general symptoms observed. Consequently it seems the part of wisdom to abort when possible the development of the bullæ, and when this cannot be done to shorten the life of the developed bulla and to check its course as quickly as possible. This had been attempted in a partial manner by opening the blebs and touching their bases with nitrate of silver or nitrate of lead, but without the distinct idea of sterilizing them.

My plan is to open each bleb as widely as possible, and to lay it bare by removing its covering. A wet dressing of bichloride of mercury 1-to-2000 or 1-to-4000 is then applied and kept in apposition from twenty-four to forty-eight hours. The dressing is then removed and ichthyol, either pure or in a twenty- to fifty-per-cent aqueous solution, is applied. After a few days this is changed for a simple zinc oxide paste or ointment, or occasionally a europhen or iodoform ointment.

When the eruption is extensive, one limb or a fraction of the surface may be treated at a time. Thus the arm may be undergoing the bichloride treatment while the leg is dressed with ichthyol, and the face or body with oxide of zinc paste. If there is any danger of absorption over a large surface, which I somewhat doubt, the above procedure would tend to obviate this.

Other bullar eruptions and pseudopemphigus, which are much more common than the genuine disease, may be treated by this method, or at least on this principle, with decided advantage.

GASTRIC ULCER: ITS ETIOLOGY, SYMPTOMATOLOGY, AND DIAGNOSIS, WITH SPECIAL REFERENCE TO TREATMENT.

By D. D. Stewart, M.D.,
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For many years I have been particularly interested in this important subject. As long ago as 1890 I published in Hare's System of Practical Therapeutics certain facts which I believed to have an important bearing on its treatment, and since then in various journal articles I have recorded additional facts which increasing experience has brought to my attention. During the writing of the present article I prepared for Sajous's Annual a comparatively brief statement which in many respects expresses the views which are here enlarged upon, but the frequency with which this lesion is met with, the difficulties in diagnosis and treatment, have led me to believe that a more complete exposition of the subject will be of interest and value at this time.

In the consideration of peptic ulcer it is necessary to carefully define what we mean by this term before proceeding to a discussion of the treatment of the lesion itself.

Gastric ulcer is characterized by a solution of continuity of a limited portion of the stomach wall, the destruction incident to which involves one, or more commonly all, of the coats, resulting in an open sore of varying size. This, in the acute form, from its rapidity of development and progress toward the peritoneal coat, without extensive peripheral involvement, assumes an aspect as if made by a "punch" instrument, as was originally remarked by Rokitanski. In the chronic variety, the ulcerating process is of slower progress, and a considerably greater mucous and submucous area may be involved, with a shelving tendency toward the muscular and peritoneal coats, the whole assuming a somewhat funnel-like aspect. The chronic form, under favorable circumstances, tends toward cicatrization; the acute shows a less benign inclination. Deformities of the stomach, such as hour-glass contraction, should the ulcer occupy its body; pyloric obstruction, when the ulcer is near the pylorus, and ill symptoms resulting therefrom, are not uncommon as a result of the cicatrization of the chronic ulcer. In both classes a tendency to hemorrhage and perforation of the stomach wall exists.

The two chief forms of true peptic ulcer are those above mentioned—the simple *chronic*, and the less common *acute*. Duodenal ulcer is closely related in character and symptomatology to gastric ulcer. Erosions of the stomach, although strictly speaking minute ulcerations of the mucosa, wholly differ from ordinary peptic ulcer in symptomatology, character, and course. Carcinomatous ulcer in most instances is simply carcinoma engrafted upon what was primarily a simple benign ulcer. This form will receive mention in the section on differential diagnosis; I have encountered two typical instances of it. Gastric cancer may itself ulcerate. It is often difficult to state from the post-mortem appearances which is primary, the ulcer or the cancer. Single or multiple gastric ulcers, not presenting the usual appearances of peptic ulcer, may occur as a result of tubercular and syphilitic infection. The former is less unusual. It is almost invariably associated with pulmonary, intestinal or peritoneal tuberculosis. Neither tubercular nor syphilitic gastric ulcer is readily diagnosticated in life.

Frequency and Etiology.—Gastric ulcer occurs more frequently than is generally supposed. Statistics show that in approximately five per cent of deaths from all causes a cicatrix of an old ulcer, or an open ulcer, may be observed if carefully searched for. The ratio of cicatrix to open ulcer is about three to one. Gastric ulcer is more common in northern than in southern latitudes, and it is apparently less common in America than in England and Germany. In Greater Russia, and in the region of the Rhön Mountains and the Bavarian Alps, gastric ulcer is little seen. Exemption in these regions, in which the inhabitants are as a rule robust and live in the open air, is regarded as probably the result of the character of the food, which is largely vegetable, rich in salts of potash, especially potassium phosphate.

The etiology of most cases is involved in doubt, despite all attempts of investigators to illuminate the subject. No single factor is always concerned in its production, and the pathological basis is often as varied as it is obscure. Certain deductions may, however, be drawn from extended clinical observations and experimentations, which at least forcibly suggest the mode of origin of many cases. Among the conditions leading to ulcer, no one of which in itself may be considered efficient for its production, but a union of several of which probably forms the usual factor, are certain diseases of the blood and of the stomach; cardiovascular altera-

tions and infectious diseases. Age and sex undoubtedly furnish a predisposition; occupation and the social and financial conditions of the individual are of less importance. Experiments have demonstrated that ulcer may be produced by a variety of causes.

Experimentally, on animals, it seems to be demonstrated that true ulcer of the stomach, that which shows a spreading tendency and in healing gives rise to some scar formation, most often requires for its production, as was first pointed out by Ewald, a lack of the normal relation between the gastric secretion and the nutritive blood, either an increased acidity of the former and a deterioration of the latter, or the two combined, at the time of the creation of a local lesion. Otherwise measures which result in loss of tissue are but temporarily operative. Thus a small readily healing ulcer may be produced by conditions depressing the nutrition of circumscribed areas of the mucous membrane, such as by ligation of small vessels, the production of emboli, or of gastric hemorrhage through injury of sympathizing portions of the central nervous system. Nutritional changes occur in limited areas of the gastric mucosa and submucosa, rendering these, through diminished vitality, subject to autodigestion. So lesions of the mucous membrane, directly produced, whether by a chemical, mechanical, or thermal irritant, give rise to local circulatory changes, leading to the same. But ulceration so produced shows no great tendency to spread and commonly heals readily. If, however, as in the experiments of Quincke and Daettwyler, the animal is first rendered anemic by previous systematic venesection, then such injury to mucous membrane has little healing tendency and is apt to result in ulcer, showing the usual characteristics observed in man. So, too, the employment by Silbermann of substances causing destruction of the red blood-corpuscles is similarly followed by tardy healing, or by progressive increase of the limited ulceration produced by mechanical or thermal means.

In the experiments of Koch and Ewald deep ulcers occurred in the stomach of animals in the areas in which gastric hemorrhages had first been caused by section of the spinal cord, and in which there was introduced into the stomach, at the same time, 0.5 per cent of HCl. They had made use of the methods of Schiff, who discovered that injury to certain parts of the nervous system, such as the thalmi, or of the cerebral peduncles, would produce localized hemorrhagic infiltrations, erosions, and even ulcer of the stomach. Schiff regarded this as due to neuroparalytic hyperemia, originated by disturbance of the central gastric vasomotor nerve connection. Ulcer was similarly produced by Ebstein and Brown-Sequard, by destruction of the anterior corpora quadrigemina. As a consequence of such injuries it seems probable, as Ewald suggests, that, as might well occur, an excessive production of HCl resulted, augmenting into ulcer the local gastric lesion, the result of the injury to the connected central nervous system. It is not now held that the gastric juice can by itself produce ulcer. Autodigestion of the normal stomach is an impossibility. HCl is not secreted by that portion of the mucous membrane at which ulcer is most common (the pyloric end); but that the gastric juice must have some influence in the development of most cases of ulcer there is little doubt. As has been directed attention to by several observers, ulcer of the stomach and of the first part of the duodenum presents a great anatomical contrast to ulcers in other parts of the intestinal tract, and is of a character that can be explained but by the digestive action of the gastric secretion.

Riegel first pointed out that in by far the greater number of cases of gastric ulcer there is a tendency to superacidity of the gastric juice. Indeed, he considered such association to be invariable. His observations have since been measurably confirmed by a large number of investigators. Although Riegel's position, that this association is an invariable one, cannot be maintained, it may now be confidently asserted that in about seventy-five per cent of the cases of gastric ulcer hyperchlorhydria is present. This has been shown to be true when examinations are systematically made at a period in which the symptoms indicate that the malady is not of very long standing, before coincident gastritis has resulted in a condition tending to produce secretory diminution. This my own not small experience strongly supports. Although extremely probable, it has not been demonstrated that this hyperchlorhydria antedates the appearance of ulcer in this percentage, and is not in many cases the result of the irritant action of the ulcer. The indications, however, are against the latter, and that although the existing hyperchlorhydria may be maintained and aggravated by the presence of the ulcer, in the majority of instances in which it is observed it has probably preceded the ap-

pearance of ulcer, and has, as was first strongly urged by Riegel, a causal relation. Riegel held that by virtue of this superacidity, should an injury to the mucous membrane of the stomach or an erosion occur, both of which otherwise might readily heal, the irritating influence of the increased HCl secretion would prevent this, and lead to the appearance of ulcer. Later developments strongly support this opinion of Riegel, but do not confirm the opinion that these factors alone will often induce ulcer. If to his view it be added that with the hyperchlorhydria and localized lesion a deterioration previously exists in the state of the blood, whereby the general bodily tone and that of the mucous membrane of the stomach is diminished, a lesion which otherwise would heal with appropriate readiness now does not, the cell protoplasm resisting less readily. Thus the superficial lesion will proceed to a true ulcer through the digestive action of the gastric juice on the injured mucous membrane, the vitality of which has been much depressed.

Very rarely symptoms of gastric ulcer are encountered in cases in which there is actual suppression of the gastric secretion, the so-called *achylia gastrica*. In all probability these are either cases of nervous inhibition, in which the irritation of the presumed ulcer has had an effect contrary to that usually produced, or they are cases in which a gastritis preceding ulcer or engrafted upon a stomach the seat of ulcer results in atrophy of the gastric tubules, the ulcer not healing despite the removal of the irritating effects of the hydrochloric acid, because of the poor nutritional condition.

The lesion whence a true ulcer starts may be produced by cardiovascular alterations, or by a local irritant such as the ingestion of too hot food or drink, or of a coarse particle such as a fish-bone or portion of an oyster shell. Embolism, as in mitral stenosis; pigment emboli, as in malaria and in hemoglobinemia; a thrombus, through local disease of the gastric vessels causing occlusion of arterial twigs supplying an area in which, before collateral circulation is established, sufficient injury to the mucous membrane occurs for ulcer to result when hyperchlorhydria is present and lowered vitality exists; local disease of the blood-vessels, or any condition tending to diminish vital functions of small areas of the gastric mucosa, with other circumstances favoring, as the occurrence of these in a chlorotic in whom hyperchlorhydria exists, may tend to originate a certain number of cases of gastric ulcer.

Virchow suggested the view that embolism or thrombosis due to local arterial disease is the common cause of ulcer, recalling that the funnel shape of an ulcer is similar to that of an embolic infarction occurring in a terminal artery of the kidney or lungs. But this view has not been regarded as quite satisfactory, since it was pointed out by Cohnheim that the gastric afferent vessels have commonly frequent anastomoses, and are, therefore, not terminal vessels. It is also known that disease of the vessel wall is not usual at the age at which gastric ulcer is frequent. Moreover, other conditions which would originate thrombosis or embolism, such as the acute infectious diseases, do not often lead to gastric ulcer. It is likely that cases of acute gastric and duodenal ulcer sometimes occur as the result of septic emboli finding lodgment in the capillaries of the gastric mucous membrane. Duodenal ulcer, the result of extensive skin burns, is presumed to so arise from acute bacterial embolic infection. Gastric and duodenal ulcer occurring in the course of pyemia are thus caused.

It has been suggested by Hemmeter that a persistent hyperchlorhydria may tend to produce instead of the normal clonic contractions of the gastric muscularis an intense local tonic spasm, which, long continued, originates ischemia with impediment to the onward flow of the venous blood. These local spasms, he points out, are readily followed by circulatory disturbances, with nutritional changes in the mucous membrane, and perhaps eventually in circumscribed hemorrhages, out of which the autodigestive process may form erosions and ulcers.

In a minor percentage of cases it seems unquestionable that hyperchlorhydria has not existed at the time of development of ulcer. In these probably a local injury to the mucous membrane, however produced, is prevented from healing by the irritant action of even a normal or slightly subnormal secretion of gastric juice, in the presence of lowered vitality of the tissues. A lesion originating ulcer may result from ingestion of a destructive irritant, such as a mineral acid or a caustic alkali. It may be due to local pressure, as from a tumor or an aneurism setting up a necrosis of the part involved.

That gastric ulcer may infrequently arise as a result of an infectious disease, as in

typhoid fever, and follow diseases in which pus formation occurs, such as dysentery, puerperal fever, suppurative peritonitis, etc., is known. Bacterial infection here probably plays an active part. Another form of bacterial infection, termed by Martin bacterial necrosis, is suggested as the likely cause of origin of a certain small number of cases not occurring as a result of a previous zymotic disease. Martin especially refers to this form, and views it as worthy of careful study; indeed, he regards it as probable that in not a few cases of gastric ulcer the primary necrosis may be of this sort, uninflammatory, due to the invasion of microorganisms into the lower depths of the mucous membrane, the subsequent ulceration being aided by the action of the gastric juice. Bacterial necrosis, which might originate ulcer, has been more commonly found in animals than in man, although it is said to exist also in man. It may be caused by different forms of cocci, both streptococci and staphylococci, and by various forms of bacilli. In a number of gastric ulcers studied by Hemmeter, bacteria were found throughout the layers of the ulcer. Hemmeter suggests it is conceivable that these microorganisms pave the way for autodigestion by causing necrosis of the tissues in which they are embedded. As yet no evidence exists to indicate that the relation of bacteria to ulcer is more than secondary or accidental, however microorganisms may be present in the walls of the ulcer.

Age, Sex, and Occupation as Factors in the Production of Gastric Ulcer.—Gastric ulcer is only rarely observed in children. One-half the cases occur between twenty and thirty, and four-fifths between twenty and forty. Its incidence decreases after forty, and beyond the sixtieth year its occurrence is rare. Gastric ulcer is more frequent in women, the proportion to men being approximately two to one. It is believed that certain circumstances favor this, such as a more frequent occurrence in women of causes which predispose to ulcer, such as chlorosis, anemia, a neurotic temperament, and, it is asserted, gastroptosis. Loose kidney, which is of much more frequent occurrence in women than in men, may in the writer's opinion act as a predisposing cause.

Occupation can furnish little predisposition other than an indirect one. In housemaids, and not in cooks, in the writer's experience, ulcer is comparatively frequent, and especially in the poorly acclimated Irish, in whom there has previously existed chlorosis and amenorrhea, and whose habits as concern food and general unhygienic conditions are unfortunate. It is questionable if character of the food can be an etiological factor, other than very indirectly, leading to anemia and aggravating a hyperchlorhydria already existing. The ingestion of very hot food or drink, especially when the stomach is previously empty, or of mechanically irritating substances, such as a spicule of bone, oyster shell, or the like, with other conditions favorable, may lead directly to ulcer through injury to a limited portion of the mucous membrane.

Influence of Certain Ailments in the Production of Gastric Ulcer.—The effect of a persistent hyperchlorhydria has already been remarked, and that of chlorosis has also been touched upon. There is unquestionably an intimate relation between these ailments and the occurrence of gastric ulcer. It rarely happens that the subject of gastric ulcer, with the appearance of symptoms of the same, is not already chlorotic or chloroanemic. It may be said with certainty that the blood changes in gastric ulcer in the majority of cases are not merely secondary, as some hold, save as concerns the anemia following hemorrhage, or that found in the later stages in some cases. That anemia itself, of course, should occur in gastric ulcer by virtue of inanition, and a result of frequent blood loss, is undoubted. Chlorosis itself cannot be explained by the occurrence of hemorrhage.

The frequency of the occurrence of gastric ulcer in hysteria is remarked by some clinicians. Hysteria can be said to predispose, through its influence, or through the influences producing it, on the general health. Associated gastric secretory abnormalities are somewhat usual in hysterical subjects, such as hyperchlorhydria or hypersecretions. The engrafting of the hysterical state upon the subject of gastric ulcer is not uncommon —the condition succeeding the appearance of ulcer. Gastroptosis is mentioned by some writers as a predisposing cause. Nephroptosis, of very frequent occurrence in women, and in the writer's experience common in the subject of gastric ulcer, seems to him a more likely causative factor than gastroptosis. In a large percentage of cases of nephroptosis, as in gastroptosis, the kidney (usually the right) furnishes no direct or indirect indication of its mobility and displacement, but in a moderate number pronounced reflex symptoms do occur and are chiefly referable to

the stomach. In an able paper on the "Diagnosis and Treatment of Nephroptosis" (*American Journal of the Medical Sciences*, March and April, 1893), Edebohls called attention to the nerve connection between the right kidney and the stomach, as explanatory of several of the more common reflex symptoms occurring in this condition. This same connection may readily explain why it is that in the neurotic woman, whose susceptibility to reflex disturbances in the direction of eye-strain, through a slight ocular unbalance, to symptoms produced by a uterine displacement which in the mentally robust would be wholly symptomless, an active condition of gastric hyperesthesia or of secretory or motor unrest might be initiated by a displaced right kidney. Nervous abnormalities in secretion, chiefly in the direction of heightened function, I have found, in a number of years' careful attention to the matter, more common in women the subjects of loose right kidney than in similar neurotics without such displacement. These women are frequently chlorotic or chloroanemic by virtue both of their temperament and habits of life, the last as concerns bad eating and lack of exercise, often engendered by the gastric neurosis. Such seem especially liable to gastric ulcer.

The common situation of ulcer, near the pylorus, and posterior wall toward the lesser curvature, a situation at which there exists no oxyntic secreting gland cells, is regarded by some as a point against the influence of the gastric juice in its production. If it is, however, recalled that during recumbency and sleep the gastric secretory function is apt to be most active, if food is present in the stomach, and the motor function least so, and that in cases of hyperchlorhydria, even when the stomach is empty, indications of undue secretory activity are often prominent, it is easy to conceive how this portion of the stomach, regarded as that in which pathological alterations in the mucous membrane, are most common, may become the seat of ulcer, if the habitual decubitus during sleep is toward the right, in a case in which the stomach contains an excess of HCl during sleep, and in which the adjacent portion of the mucous membrane has been subject to injury. This is the common position assumed by those in whom loose right kidney causing symptoms exists, and is that usual in most people when at rest in recumbency.

Occasionally duodenal, and less frequently both gastric and duodenal, ulcer occurs as a result of an extensive skin burn, and then during the second or inflammatory (sloughing of the involved skin) stage of the latter. Its occurrence here is in all likelihood due to the wafting of septic emboli from the sloughing skin to the capillaries of the mucous membrane of the stomach. Its production is probably aided by the action of the gastric juice digesting the circumscribed area of tissue involved in the septic embolic process. The occurrence of duodenal and gastric ulcer from burns is thus akin to similar ulceration in the course of pyemia as a result of septic emboli being carried into the circulation. They are truly of bacterial origin, as before remarked.

Gastric ulcer as a result of valvular heart disease (embolism), and from local disease of the arteries, has been already mentioned.

The ulcer may be single or multiple. Commonly but one chronic ulcer exists. The situation is most frequently in the pyloric region (in more than seventy-five per cent), and on the lesser curvature or the posterior wall. In Ewald's experience—the number of necropsies upon which it is based is not given—the site is usually at the pylorus and the greater curvature "corresponding to the most dependent portion of the stomach at which the gastric juice collects in the erect posture." Nolte, quoted by Ewald, gives the seat of frequency as the greater curvature, 22; pylorus, 3; posterior wall, 2; anterior wall, 3; cardia, 1. But Welch's analysis of nearly 800 cases shows very marked deviation from this; in these the lesser curvature was the seat in 36.3 per cent, the posterior wall in 29.6 per cent, the pylorus in 12 per cent, the anterior wall in 8.7 per cent, the cardia in 6.3 per cent, the fundus in 3.7 per cent, and the greater curvature in 3.4 per cent.

Although the size of the ulcer varies, its usual diameter is from one-half to one inch. It may be of a very much greater extent; one of approximately two inches in a long-standing case is not uncommon. The shape of the ulcer, although it frequently varies, is usually oval or round, with a funicular or crater-like form. When the ulcer is of some size, it often tends to assume a horseshoe appearance. An ulcer of this sort in a fatal case recently observed by the writer was of about six years' standing, and lay astride the lesser curvature near the cardia. The form of a chronic ulcer is usually obliquely funnel- or crater-like. The mucous membrane of the ulcer is destroyed over a larger area than is the submucosa; the latter is more des-

troyed than the muscularis, and the muscularis than the peritoneal layer. Thus the circumference of the would-be base of the cone is at the mucous surface and the truncated portion occupies the peritoneal coat or the surface of an adjacent organ such as the liver, pancreas, or spleen. In a case of the writer's in which there existed two large chronic ulcers, one astride the lesser curvature was adherent to the left lobe of the liver, the other astride the greater curvature, near the pylorus, was adherent to the pancreas. The edges of a long-standing ulcer are usually greatly indurated, not due alone to submucous fibrous increase, but to hyperplasia of the mucous membrane, the muscular and the peritoneal coat. The bottom of the ulcer is of irregular shape, of brownish or yellowish color, and may be smooth or rough, showing perhaps portions of slough on its surface. The muscular base is usually of quite wide extent. As is remarked by Martin "it appears resistant to the chronic ulcerative process, and the thickened circular muscles are more resistant than the thin longitudinal (the oblique not often being recognizable). At the edge of the exposed muscle is the thickened submucous coat with the mucous membrane frequently curved over it, but not undermined. Not infrequently the edge of the ulcerated musclar coat (circular) retracts beneath the thickened mucous and submucous coats, increasing the thickness of the edge, but leaving the ulcer with a smooth base and more vertical edges."

It seems certain that in a fair number of cases the ulcer, whether acute or chronic, arises from local disease of the blood-vessels, and the hemorrhagic infarction which results. But in many others in which no such primary vascular lesion can exist, or the vessel supplying the affected area have been the seat of injury through spasm of the gastric muscularis, we must assume, according to Ewald, that the ulcer develops from small follicular hemorrhages, or from hemorrhagic erosions, the seat of which is commonly the pyloric region, and the cause local injury or local stoppage of the circulation.

The gastric wall for a moderate distance around the ulcer, when the latter is of long standing, generally shows evidences of inflammatory change. There is often a limited gastritis with embryonic infiltration, and border cell changes, preservation of the chief cells, and glandular proliferation. There may be, and often is in long-standing cases, a tendency to a diffuse gastritis, characterized at first by proliferation of the glandular elements, and later by their diminution with a tendency to general glandular atrophy. In the vascular areas about the ulcer there is apt to exist a progressive endarteritis, involving arterioles, capillaries, and venous radicles. Thrombi usually exist in the lumen of the affected vessels. With involvement of the peritoneal coat in the ulcer cavity a localized or more general inflammation of this membrane exists. The peritoneal surface is apt to be much thickened, representing nature's effort to prevent perforation. In about fifty per cent of all cases adhesive inflammation occurs to some organ or part. When the ulcer is adjacent to one of the viscera—pancreas, liver, or spleen—in the course of time adhesions are formed. In the vast majority of cases, because of the situation of the ulcer and the relations of the stomach, the adhesions are between the pancreas or left lobe of the liver and the stomach. In an interesting case of the author's before referred to, in which there existed two large gastric ulcers, both of which had undergone carcinomatous degeneration, the one astride the lesser curvature near the cardia, the other astride the greater curvature near the pylorus, firm adhesions existed above to the left lobe of the liver, and below to the pancreas. Much less often adhesions occur to the spleen, the omentum, the colon, or the abdominal wall. In a case of long-standing ulcer the situation of which was the usual one, there were present dilatation of the stomach and a tumor mass in the pyloric region. Pyloric obstruction from cicatrization of ulcer, presumably adherent to the omentum, was diagnosed by the writer, and a section by Dr. T. S. K. Morton showed the correctness of this opinion. A large knuckle of much thickened omentum was united to the base of a partially healed, extensive ulcer, which ulcer in process of cicatrization had almost entirely closed the pyloric lumen.

An ulcer commonly terminates by cicatrization. In a small percentage of cases, instead, perforation occurs, or death takes place from uncontrollable hemorrhage, due to rupture of a large vessel. If the ulcer is of any size and depth, scar formation occurs as a result of cicatrization, succeeded by subsequent contraction of the newly organized tissue and its consequent deformity. There may be a stellate puckering of a more or less limited area surrounding a smooth depressed cicatrix, or, in a smaller ulcer, a contraction of the mucosa and submucosa will

form into a small star-shaped scar. If the mucosa alone has been involved in the ulcerative process the scar resulting may be so slight as to escape notice on the post-mortem table. The center of the scar may be ultimately united by adherent inflammation to an adjacent organ or part. Deformity of the stomach often results as a consequence of cicatrization of the ulcer. In one case of the writer's a central, complete hour-glass contraction had occurred because of the extensive cicatricial contraction of a very large ulcer situated in the body of the stomach. Here the stomach was divided into two separate pouches. The impossibility of cleaning the stomach by lavage was thus explained. The patient died as a result of cancer of the head of the pancreas. Other deformities may occur totally interfering with the functions of the stomach, such as approximation of cardia and pylorus, with obstruction of the lumen of the latter, in cicatrization of a large ulcer of the superior curvature. Pyloric obstruction with subsequent extensive dilatation of the stomach is a very frequent consequence of cicatrization of chronic ulcer.

Perforation of the gastric wall by the ulcer occurs in about five per cent of all cases. In those in which no adhesions exist to some part or to one of the viscera, a local or general purulent peritonitis is apt to result in consequence. Ulcer occurring in the pyloric region or on the posterior wall, or on the lesser curvature posteriorly, is likely to have formed adhesions before perforation happens. Ulcer of the anterior wall (infrequent) most often perforates. Adhesions commonly have not formed because of the free movement of the anterior surface of the stomach against the abdominal wall. This form of perforation is apt to be rapidly fatal, either in a few hours from shock, or in a few days as a result of a purulent peritonitis following. Perforation of ulcer adherent to the liver is apt to result in abscess; a similar result, or merely a local inflammatory condition with formation of fistulæ, may occur from perforation when the ulcer is adherent to pancreas or gall-bladder. An abscess may result from perforation in any situation in which adherent inflammation has occurred, save in connection with a hollow viscus, such as the gall-bladder or colon or the small intestines.

Tubercular Ulcer of the Stomach.—This is a rare affection, not over thirty cases having been recorded. Several of these are not considered altogether authentic. It is not found save with tubercular lesions elsewhere, as in the lungs or in the intestines. But one instance was found by Eisenhardt in 567 cases of tuberculosis of the intestines. Dürck observed four cases in 900 autopsies in Munich. The rarity of the occurrence of tubercular affection in the stomach is believed to be due to the fact that, unlike what is the case in the intestine, few lymph glands exist in the gastric wall, and that the normal stomach does not favor bacterial growth. Orth demonstrated the usual immunity of the stomach; rabbits fed by him with tubercle bacilli developed intestinal tuberculosis seven times, and gastric tuberculosis but once. However, with impaired resistance on the part of the mucous membrane and diminished secretion of HCl, other factors favoring, such as impoverished blood and the presence in that fluid of the infecting principle, or the frequent ingestion of the same, tubercular ulcer may occasionally develop. Tubercular ulcer may be single or multiple, and has wall-like thickened margins with a granular base, not extending usually below the muscularis. In both margins and base of the ulcer tubercular nodules containing giant cells and abundance of the characteristic bacilli are usually found. The common situation of tubercular ulcer is the pyloric region. Infection may occur directly from the stomach, or as is assumed always to occur by Habershon, through the blood.

Syphilitic ulcer is also infrequent, more so indeed than the tubercular ulcer. Ulcer occurring in a syphilitic subject is usually of the ordinary peptic variety, and has no apparent direct relation to previous syphilis, save perhaps through a resulting specific local endarteritis. Gumma of the stomach is less rare than syphilitic ulcer, and probably most often through degeneration forms the basis for the latter. It must be said that with a local luetic endarteritis occurring in the stomach, the resulting thrombotic closure of arterial twigs could easily serve for the basis of ordinary peptic ulcer, such as happens in the non-syphilitic, so that gastric ulcer in a syphilitic, when resulting from venereal infection, occurs from either disintegration of a previous gumma or from a necrosis of the mucosa following specific endarteritis. It should be said that Neumann holds that syphilis is not an uncommon cause of gastric ulcer. He believes that, with other sources of origin, ulcer may develop from gastric erosions, which he thinks are frequent in syphilitics.

(*To be continued.*)

The Therapeutic Gazette

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Leading Articles.

SOME FACTS IN REGARD TO THE TREATMENT OF INFLUENZA.

There are very few diseases which in their early stages produce such mild symptoms, and which on the other hand are capable of being so rapidly fatal in their results, as influenza. There is probably no malady in which careful nursing and the avoidance of exposure will so certainly produce recovery in the ordinary individual as this disease; and conversely, there is no illness which if subjected to poor nursing associated with exposure is capable of producing more serious consequences. While the patient may feel generally wretched in the early stages of invasion, he often does not feel sufficiently ill to force him to his bed. His fever is often moderate, and strength at this period is not sufficiently decreased to impress upon his mind the necessity of its preservation by absolute rest. The result is that very frequently the patient keeps on his feet, as does a case of walking typhoid fever, until his vital energies are so sapped that he becomes not only bed-ridden but in desperate straits, and then it is that the physician is called upon with the expectation that he will give speedy relief. Unfortunately, in many of these cases, consolidation of the lung, feebleness of the heart muscle, or renal complications are important factors in the case which cannot be speedily dissipated, and which often resist all our efforts at betterment.

Undoubtedly much more can be done in the way of prophylaxis when a person is taken ill with influenza than can be accomplished by active medicinal interference, and the prospects of rapid recovery are always in direct proportion to the willingness of the patient to lie by for a few days when he is first taken ill. Ever since the great epidemic of influenza which swept over the country in 1889 and 1890 and thereabouts, physicians have constantly met with cases of cardiac disease which have dated their illness from the attack of grippe suffered at that time. Many of these patients previous to that epidemic were already sufferers from valvular affections of the heart, but were unconscious of the valvular defect until the influenzal poison so sapped the strength of their heart muscle that a rupture of compensation occurred. In other instances persons who had previous to that illness perfectly healthy hearts have now apparently perfect valves, but nevertheless suffer from evidence of heart feebleness, continuously or upon marked exertion. In these cases the influenzal poison seems to have expended its energy solely upon the heart muscle and produced a cardiac asthenia which it is often impossible to overcome. Many of these cases of cardiac asthenia depend upon the patient having disregarded his physician's advice and insisted upon getting out of bed before the heart muscle had time to recover from the disease. Every patient should be told when taken ill with influenza that the surest way to reach perfect recovery is to call upon all the vital functions of his body to the least possible extent during his illness, resting assured that the old motto of "Make haste slowly" holds true most emphatically in this disease. In many instances no other treatment than this advice is really needed, although in many of them it is advisable from the very beginning of the illness to administer some mild alkaline diuretic, which is perhaps best represented by the following prescription:

℞ Potassii citratis, ʒ ij;
Spiritus ætheris nitrosi, f ʒ j;
Aquæ dest., q. s. ad f ʒ iv. M.
S.: Dessertspoonful every four hours.

This prescription will maintain urinary flow, be slightly antipyretic in its influence, will perhaps aid in the destruction of the toxic materials, and certainly will aid in their elimination by the kidneys; and it cannot be doubted that free diuresis for the purpose of eliminating the impurities of the body is an important part of the treatment of all infectious diseases.

For the muscular and bone pains of influenza the application of a hot-water bag or hot brick to the part of the body which is in greatest suffering will often be efficacious, and is much better than the administration of coal-tar products, which are apt to help produce cyanosis and nervous depression, and which give the kidneys additional work in elimination. But if these symptoms are marked, acetanilid in what is well known as the migraine tablet, which contains two grains of acetanilid, half a grain of citrated caffeine, and one grain of monobromated camphor, may be administered several times a day; or in its place phenacetine and salol, as these preparations seem to depress the circulation less than some of the other coal-tar combinations.

If an irritable cough, unassociated with distinct bronchial or pulmonary trouble, annoys the patient, doses of codeine, say one-tenth to one-fifth of a grain, may be administered several times a day with advantage; and if headache is marked and of a congestive type, with cold in the head and frontal fulness, a hot mustard foot-bath repeated several times a day will often give relief, and is a much better method of treatment than the administration of drugs.

In some cases of influenza the heart seems to be considerably depressed by the action of the disease, and it is necessary to administer stimulants. But in the great majority of instances, if the patient will remain flat on his back in bed the use of stimulants is unnecessary, and if they can be avoided it is best not to administer them. If they are given, moderate doses of the alcoholic stimulants are probably best, particularly if whiskey or brandy is administered, in the form of hot lemonade, which, while acting as a stimulant to the circulatory system, will also increase the activity of the skin and kidneys in eliminating toxic materials. We do not think that the fever ought ever to be lowered by coal-tar products, but always by sponging with tepid water; or, if the temperature is very high, by the use of the so-called sponging or rubbing of the body with a small piece of ice, using active friction with the other hand, and keeping cold applied to the head so as to avoid cerebral congestion during the sponging. Where patients object to the use of cold water or ice, alcohol and water, half and half, may be employed, and in other instances a mixture of equal parts of warm vinegar, warm water, and alcohol may be used with advantage, in that sponging with this liquid not only cools the skin but opens the pores, washes off effete materials, soothes the peripheral sensory nerves, and by so doing tends to produce sleep.

Another drug which is of value because of its influence in increasing secretion of the skin, and because it relieves pain in the muscles and bones, is Dover's powder. But this substance often seems to produce secondary depression in blond, sanguine persons, and because of the opium it contains is liable to increase constipation, which should not be encouraged in the presence of a condition where it is desirable to aid in elimination as much as possible.

THE DISAGREEABLE EFFECTS OF DRUGS.

From time to time we have called attention in the THERAPEUTIC GAZETTE to a fact which is very frequently ignored by physicians, namely, that drugs which possess power to do good are also qualified to do harm, if they are employed in a case in which their action is unsuitable. This statement seems on its face so self-evident as to scarcely require attention, yet as a matter of fact almost every physician, if he will carefully analyze his reasons for prescribing certain remedies, will often find that the reasons that he can adduce are not particularly good, and not infrequently careful mental analysis of his prescriptions will reveal the fact that certain of the ingredients have no reason for their existence therein, and even possess the possibility of doing more harm than good.

Among the laity the belief that drugs possess wonderful healing powers is very widespread, and this is not unnatural when we consider, first, that the laity has no idea or conception of the pathological changes underlying disease processes, and cannot realize that in many phases of disease such distinct alterations take place in various organs that a perfect cure is absolutely impossible. The second reason for their profound belief in medicinal remedies depends

first upon the fact that the wish is the father to the thought, and it is pleasant to think that a specific remedy exists for a given malady; and secondly, because in certain functional disturbances, the manifestations of which to the untrained eye are as marked as are the manifestations of organic lesions, the use of medicines frequently produces extraordinary cures. Theoretically, these influences should not govern medical men; but practically we are convinced that they too frequently warp and distort their judgment, with the result already named. In some instances, certain conditions which may be present strongly indicate the administration of a given remedy; but careful examination of the patient will discover the fact that other states more strongly contraindicate its employment, so that while the drug may relieve one symptom or condition, it will distinctly emphasize or exaggerate others which are more evil in their nature. This means, as we have said, that all drugs which possess power for good also possess power for evil, and that the more powerful a remedy is for producing good results, the more carefully must it be employed lest it produce deleterious influences.

A number of years ago in the editorial pages of the GAZETTE we mentioned several important conditions in which the administration of such a comparatively harmless drug as quinine might produce evil results, and pointed out that epilepsy, cystitis, gastritis, meningitis, and personal idiosyncrasies all acted as contraindications to its employment, since its use in full doses is calculated to exaggerate the symptoms and lesions associated with the conditions we have just named. We have also from time to time pointed out that various drugs like quinine and iodide of potassium produce changes in the skin which will often mislead the physician into a diagnosis of some particular form of skin disease, when in reality the discontinuance of the drug in question will result in an entire cure; the eruption being due solely to the influence of the medicament.

Again, papers have appeared in the GAZETTE in which the value of digitalis has been recognized, and yet, on the other hand, the deleterious effects of this drug when given in too large doses or over too long a period of time have been noted; and the fact has been pointed out more than once that while strychnine is a very valuable stimulant to meet acute conditions of collapse or shock, its prolonged administration in cases of circulatory and general systemic depression often produces great irritability of the nervous centers, great rapidity of the pulse, and irregularity of the temperature.

Our attention has once more been called to this matter by a writer who contributes a paper to the *New York Medical Journal* of January 26, 1901, and who writes from Zamboanga in the Philippines, namely, Dr. P. F. Harvey, a major and surgeon in the United States Army. He points out first that physicians must use drugs cautiously and in small doses, and not be in too great a hurry to produce definite curative results, since time is a very important factor in producing a cure, and nature must be given sufficient opportunity to carry on the alterations in nutrition which are associated with the influence of the remedy. He quotes Hartzell as having pointed out that the prolonged administration of arsenic in the treatment of psoriasis might be an etiological factor in the development of epithelioma.

We have also called attention to certain investigations made by English physicians which reveal the fact that the full doses of arsenic sometimes given in chorea result in the production of neuritis with loss of sensation and motion; and Harvey speaks of a case in which a minute quantity of iodoform dusted over a wound produced a scarlatinal rash, general wretchedness, headache, sleeplessness, vomiting, and delirium. He also recalls the fact to our observation that during the course of typhoid fever the prolonged use of strychnine as a heart tonic is distinctly disadvantageous, producing a thready pulse and great irregularity of the heart.

THE PREVENTION OF WATER-BORNE ENTERIC FEVER AMONG SOLDIERS AND OTHER PERSONS.

Pretty much every one fully recognizes the fact that typhoid fever, like most of the other prevalent infectious maladies, is emphatically a preventable disease. Indeed, it has been well said by one authority that every case of typhoid fever which ends in death might be justly considered an instance of manslaughter due to carelessness; for without doubt, if all the bacilli escaping in the feces, urine, and other discharges of typhoid fever were promptly treated as soon as they left the patient's body, typhoid fever would practically cease to exist. While it is true that the typhoid germs sometimes find their way into the body in raw food, such as un-

cooked oysters, and upon vegetables which have not been cooked, but which have been fertilized with night-soil, it is also a fact that in the vast majority of cases the typhoid infection occurs through water which is taken by the patient after it has been infected by discharges of persons ill with this disease. Particularly is this the chief source of infection in the various great epidemics that occur from time to time, and without doubt the large mortality and morbidity in the British army during its South African campaign has been due to the infection of drinking-water. On the other hand, it is almost impossible in such campaigns to see to it that all discharges are properly disinfected, and to prevent careless soldiers from drinking freely of water which is polluted, chiefly because their thirst is sometimes very great, and also because it is impossible to impress upon soldiery the fact that by this means fatal infection may occur. Of course, it is a fact that boiling the water will kill the microorganisms, but many times this is impossible, and even when it is attempted, it is sometimes done so ineffectually that the bacilli are never sufficiently exposed to high heat to kill them.

The great object has been to find some substance which when added to water which was under suspicion would destroy any infecting microorganisms and yet would fail to produce any deleterious influence upon the more highly organized protoplasm of the intestinal canal of the individual. This difficulty has been so persistent and so great that no satisfactory means have as yet been devised for the attainment of disinfection of water except by boiling, unless it be by the employment of a filter which not only removes ordinary impurities but is germ-proof as well. Manifestly, the employment of germ-proof filters in armies in the field and even in private practice is in the greater number of cases absolutely impossible, because of the difficulty of transportation or the inability of the ignorant to keep the filters in such a condition that they will be of real value in purifying the liquid. It is therefore with very considerable interest that we have read a paper in the London *Lancet* of January 26, 1901, by Louis C. Parkes and Samuel Rideal, in which they have detailed experiments made by them to determine what substances could be added to drinking-water with the object of making it innocuous, should it contain typhoid or other infecting microorganisms. It goes without saying that the substances which are to be employed for this purpose must occupy a small space and be readily carried. The substance which they employed in their experiments consisted of sodium bisulphate, tartaric, citric, nitrohydrochloric, and sulphuric acid. In the cases of these various acids it was found that they were impracticable either because they had to be used in large proportions of the acid, or else that they failed to destroy the microorganisms unless they were in concentrated form. Another difficulty with these various acids is that they are not practical for armies in the field owing to their fluid character, as it would be impossible for a soldier to carry with him the liquid acids without danger of producing acid burns and other disagreeable sequences.

Acid sodium sulphate, which is not official either in the United States or the British Pharmacopœia, proved to be an active substance capable of disinfecting water and rendering it safe, and also capable of being put into such a form that it can be readily carried without in any way inconveniencing the soldier who has placed it in his kit. While it is true that sodium sulphate or "Glauber's Salts" possesses distinct purgative properties, it is also true in regard to acid sodium sulphate that the amount of sulphuric acid which is present counteracts any influence of the sodium salts in the way of producing purgation, so that there does not seem to be any danger of causing diarrhea by the use of this preparation. Further than this, these investigators point out that the minimum purgative dose of sodium sulphate is ¼ ounce, and it is found needful to add only 15½ grains of bisulphate of sodium to each pint of water in order to render the germs incapable of producing infection. As a man is not apt to drink more than seven pints of water a day, a sufficient quantity of the salt is not taken in twenty-four hours to produce purgative effects; and they adduce evidence to show that the bacillus of typhoid fever is killed by exposure for only five minutes to a solution of sodium bisulphate in the proportion of 1 drachm to 500 cubic centimeters—that is, 15 grains to the pint of infected water. It is, however, better that the exposure should continue for from ten to fifteen minutes, in order that full action may be insured.

Acid sodium phosphate and sodium sulphovinate were employed, but they did not approach acid sodium sulphate in their efficiency, and were discarded. Parkes and Rideal therefore recommend that sodium bisulphate be put up in compressed tablets

of five grains each, prepared in such a way that they dissolve quickly when added to water, and that they should in turn be placed in a small metallic box which will hold about a quarter of a pound of these, equivalent to 350 tablets. This will be enough to sterilize over one hundred pints of water at the rate of three per pint. A box of this character could very readily be carried by every soldier, and if three of the tablets were added to a pint of water fifteen minutes before it was drunk, they think that a large number might escape infection. As only in a few instances are drinking-waters so heavily loaded with typhoid bacilli as to make the disinfection of the fluid difficult, it is highly probable that only in very badly polluted waters which have been infected by concentrated urine containing millions of typhoid bacilli would acid sodium sulphate prove useless. As a general measure possessing some value, incapable of doing harm and capable of doing good, this suggestion seems to us to be at least worthy of trial.

Furthermore, it has been found that one of these tablets of acid sodium sulphate, if placed in the mouth in the absence of water, causes a free secretion of saliva and does much toward putting aside the thirst from which an individual may be suffering when he is unable to obtain water which is pure. These investigators claim that this use of acid sodium sulphate in the mouth has already been tried in South Africa, and has proved efficient, those who have used it claiming that it gave much relief in a parched condition of the mouth, and of the upper respiratory tracts, by promoting secretion.

Researches of this kind are certainly in the right direction, and we trust that these investigators may see their way clear to pushing their studies further, and thus give us results which will undoubtedly prove important.

WHICH PREPARATION OF ERGOT IS THE BEST TO EMPLOY?

Our attention is called to this matter by a note which we have recently seen in the London *Lancet*, in which the author expresses the opinion that it is much better to employ a substance which is commonly known as ergotine, but which is really a solid extract of ergot, in preference to the fluid extract of ergot, which in his experience has given him uncertain results, and which he thinks by reason of the process of its preparation cannot be expected to produce results of which ergotine or solid extract of ergot are capable. He gives no very good reason for this belief, and therefore we are not at liberty to criticize the statements which he makes, but we cannot help feeling that the difficulty does not lie so much in the question as to whether ergotine, the solid extract of ergot, or the fluid extract of ergot should be employed, as it lies in the necessity of employing a preparation of ergot which is prepared by proper methods from crude ergot which in turn has been physiologically tested before it is placed on the market. There is probably no substance used in dangerous cases which is more apt to vary in its physiological activity than ergot. It is not a pure vegetable drug in the sense that digitalis or aconite can be classed as such, but is derived, as is well known, from a fungous growth upon rye. The conditions for the development of this fungus are sometimes favorable and sometimes unfavorable, and if they are unfavorable, undoubtedly the ergot which is developed does not possess the peculiar influences of pure ergot upon unstriped muscular tissue throughout the entire body, more particularly that of the uterus, and upon the uterine centers in the spinal cord. As we have before pointed out in the editorial pages of the GAZETTE, physiological testing has revealed the fact that a large amount of ergot placed upon the market, while it may appear first-rate to the average inspector, is, when tested, absolutely or partially inert. While, in all probability, evil effects will not follow the administration of ergot of this character, still the drug will be unjustly accused of being of no value, when in reality it was the particular sample employed in a given case which did not deserve the physician's indorsement. If physiologically tested ergot is employed, and is employed properly in cases which really need its influence, we have yet to hear of an instance in which it has failed to produce the effect upon a human being which we would expect as the result of a physiological test.

THE TREATMENT OF CREOSOTE POISONING.

Creosote has become so largely employed as an internal medicament in the treatment of bronchitis, tuberculosis, and other conditions, that it is possible for cases of creo-

sote poisoning to readily occur. While on the one hand it is true that creosote is almost chemically identical with carbolic acid, it is also a fact that carbolic acid fails to give similar therapeutic results when it is given internally, and physicians of experience recognize the fact that creosote, which is obtained by the destructive distillation of beechwood, possesses the greatest therapeutic activity. It has been known for many years that carbolic acid, when taken in poisonous doses, should be neutralized, or rather rendered innocuous, by the administration of full doses of any one of the soluble sulphates, preferably of sulphate of magnesium or sulphate of sodium, which will not only form harmless sulphocarbolates, but in addition act, if given in excess, as purgatives, and so rid the alimentary canal of this compound.

A number of years ago, in order to determine whether soluble sulphates would act as efficiently as antidotes in creosote poisoning as in carbolic acid poisoning, the writer of this editorial carried out a series of experiments in which poisonous doses of creosote were given, followed by the soluble sulphates, and found that they seemed to be equally efficient as antidotes as in carbolic acid poisoning.

Our attention has once more been called to this matter by the report of a case by H. M. Hewlett, one of the physicians to the Melbourne Hospital for Sick Children, who records, in the *Intercolonial Medical Journal of Australasia*, a case of a child three and a half years old who swallowed two drachms of creosote, and rapidly became unconscious, developing many of the characteristic symptoms of carbolic acid poisoning. The stomach was washed out with about two pints of strong solution of the sulphate of magnesia, about six ounces being left in the viscus. Strychnine was given hypodermically, external heat was applied, and a rectal injection of Liebig's extract of beef and brandy was given. After a short time marked improvement took place, and the child progressed to convalescence, passing in the meantime very dark brownish urine, evidently the result of the elimination of the creosote by the kidneys.

SERUM INJECTION IN THE CURE OF CANCER.

It will be remembered that Wlaeff, of St. Petersburg, last summer stated that he had discovered a serum the injection of which would cure cancer. This serum he made from cultures of the blastomycetes or ferment extracts of cancerous tumors, and he employed it in a number of malignant cases inoperable because of the size of the tumor and the extent of glandular involvement. Of the two cases presented by him in illustration of the potency of his treatment, the first received six injections in the course of a month and showed some improvement. Operation was performed, but the cicatrix ulcerated. This ulceration healed under the influence of renewed injections, though the glandular engorgement did not disappear, requiring removal by the knife.

Another patient suffering from extensive epithelial involvement of the tongue was apparently markedly benefited by the injections and his pains greatly lessened.

Championnière saw one patient with epithelioma and enormous ganglion engorgement greatly improved by six months' treatment; also a woman suffering from cancer of the breast, who stated that following the injections she experienced greater comfort and more freedom of movement.

With a spirit worthy of emulation Berger and Reynier (*Journal des Praticiens*, No. 48, 1900) placed a number of patients suffering from inoperable cancer under Wlaeff's care, keeping these patients under careful and almost constant surveillance during the course of the treatment. They were not able to note a cure in a single case, though the patients always were greatly improved by the treatment, and they felt benefited by it. The tumor seemed to diminish somewhat in volume. A cancer of the rectum exhibited a lessened tendency toward hemorrhage, and several cancers of the tongue showed less salivation and edema. There was a decided diminution in the amount of pain. Several patients gained weight, and in others the progress of emaciation seemed to be ameliorated. Indeed, the malignant disease seemed to become for the time arrested, but this arrest was never followed by a cure, nor was there any reason to hope or suppose that a cure would ultimately result. The action of the injection seemed to be transitory, since when patients who had experienced any relief stopped treatment, the symptoms at once became more pronounced. Championnière points out that many other forms of treatment have been heralded as curative because of a similar arrest in the progress of disease. He notes that the administration of magnesia has, in his own experience, been

followed by this result, and believes that he has even seen a cure. Jaboulay holds that large doses of sulphate of quinine will produce this result.

GUNSHOT WOUNDS IN MODERN WARFARE.

The surgical records of the recent wars—on the Indian frontier, the Chinese-Japan war, the Spanish-American war, and the English-Boer war—furnish sufficient ground for a very fair estimate as to the mortality and crippling effects of the modern small arm.

It may be assumed in spite of much that has been written to the contrary that the missile almost universally employed was the modern jacketed bullet. This varies but slightly in caliber, and is propelled with practically the same force by all weapons used by civilized nations.

On the basis of experiments made upon cadavera it was assumed, before a practical trial of these weapons was made, that the percentage of killed to wounded should be much larger than was the case when missiles of larger caliber and lower velocity were employed.

The so-called explosive action of the modern small caliber bullet has been explained by the fact that in addition to its forward motion the bullet receives a certain rotary swing in the beginning of its flight, which swing disappears at mid-ranges but is reassumed as the ball loses velocity. An illustration of such a rotary swing is seen when a top is spun. This toy at first sways unsteadily, then, in the parlance of schoolboy days, it falls asleep, then sways again as its rotary motion becomes less rapid, until finally it falls on its side.

The cadavera experiments demonstrated an enormous shattering effect when wounds were inflicted at short or at long ranges, while at middle ranges—that is, from 600 to 1200 yards—the bullet exhibited a tendency to pass entirely through both hard and soft tissues, leaving a wound much like that which would be inflicted by a gimlet. These experiments have to an extent been corroborated in actual practice.

The shattering effect and the lethal effect of short-range wounds, particularly when the ball has struck bony tissue, or the head, or the liver, have been most marked. This same effect, however, has not been so distinctly observable in long-range wounds; nor has it been noted as often as theoretical considerations would lead us to expect.

The very large majority of wounds have been clean punctures. A not improbable explanation of this lies in the fact that the modern rapid-firing gun makes close-quarter engagements the exception rather than the rule.

Another surprising circumstance in relation to modern warfare is the number of bullets which have been found lodged in the tissues. Because of the high velocities of the missiles it was naturally supposed that nearly all wounds would be perforating; but since many are inflicted at extreme ranges, or by bullets that have ricochetted or that have passed through some substance before striking the body, the assumption that but few would find lodgment has been disproven. Thus, of 198 Mauser bullet wounds seen by Captain Borden in the Santiago campaign, there were twenty-one lodged bullets. He notes that many of these bullets were found in the tissues either deformed or turned end for end, almost conclusively proving that before inflicting the wound they had either passed through some dense substance or had glanced from it, losing the greater part of their velocity.

It has also been demonstrated that the course taken by the modern bullet is a straight one, even when its velocity is so low that its perforating power is lost. This peculiarity Borden attributes partly to the form of the missile, but mainly to its great sectional density. It thus differs markedly from the old leaden bullet of large caliber, with which deflections after entering the body were common. Slight displacements of the jacketed bullet from the line of its course are sometimes due to muscular action or to pressure of the neighboring organs after the bullet has come to rest.

It is gratifying to note that the percentage of deaths among the wounded is lower in the Spanish-American war than in any war of which we have a reliable medical history. In the American civil war there were 246,712 wounded; of these, 31,978 died, a mortality of 12.96 per cent. In the Franco-German war there were, among the Germans, 99,566 wounded, of whom 11,023 died, a mortality of 11.07 per cent. In the Spanish-American war, however, 1594 were wounded, of whom 106 died, a mortality of 6.64 per cent.

It is noteworthy in comparing the records

of the civil war with the Spanish-American war that the percentage of mortality for wounds of the head, of the face, and of the abdomen is about the same. It was greater in the recent war for wounds of the neck and spine; less than half as great for wounds of the chest; less than one-sixth as great for wounds of the back; and less than one-tenth as great for wounds of the extremities. Indeed, the number of deaths from wounds of the extremities was but ten in 191 cases, and three of these died very shortly after the receipt of their injuries, probably from hemorrhage.

In regard to treatment of wounds of the extremities in the two wars, less than one-half the proportionate number of operations were performed in the last war than in the civil war. The mortality of the cases subject to operation was about the same in the two wars, but it must be noted that in the Spanish-American war only extremely serious cases were subjected to operative procedure. In the cases treated conservatively the mortality of the recent war was reduced over twenty-two times.

Borden demonstrates that this decreased mortality can by no means be attributed to the different effect produced by the small-caliber bullet, since the Roentgen ray examinations have shown that in fractures the amount of bone comminution is generally as great with the new as with the old bullet. He believes that conservatism has been made possible mainly through the fact of the recognition of the general aseptic nature of bullet wounds, the maintenance of thorough asepticity by the use of occlusive dressings, and the treatment of septic wounds by antiseptic methods.

The value of the primary aseptic occluding dressing is universally recognized. It now seems to be well established that even though the bone be extensively comminuted, and joints be involved, provided the wound can be kept clean, conservative treatment affords an infinitely better chance of recovery and of the restoration of functional activity than any form of operative treatment. It also seems perfectly clear that when these extensively comminuted fractures become infected, removal of detached splinters, drainage, or excision, or even amputation, will still be required.

POSTOPERATIVE INSANITY.

It is a well recognized fact in surgery that after both major and minor operations in a small percentage of cases there develops a condition of mental confusion, often accompanied by restlessness, and sometimes by hallucinations or even by acute mania. This was observed as far back as the sixteenth century, and was ascribed by many of the older writers to the effects of alcoholism. The circumstance that these disturbances or perversions of cerebral activity are at times permanent makes an investigation as to their cause, their frequency, and their preventability a matter of prime importance.

The literature upon the subject is now sufficiently comprehensive to justify certain conclusions in regard to this subject. First, as to the frequency of postoperative insanity: Werth notes that it occurred in six of three hundred cases subjected to gynecological operation. Weiss records seven instances of postoperative delirium in 700 operations. Denis, as the result of a statistical study, based especially on gynecological practice, believes that postoperative psychoses occur in about 2.5 per cent of cases. Croom, of a thousand operations, notes four cases of mental disturbance.

If all cases of delirium, melancholia, and other mental disturbances following surgical intervention are to be classed as postoperative, doubtless a percentage considerably larger than is noted in the foregoing reports should be recorded. It is well known that heavy drinkers are extremely liable to an outbreak of delirium tremens subsequent either to an accidental wound or an operative procedure. Moreover, there are certain drugs which are especially prone to cause such disturbances, and among these may be named iodoform, which has so often caused cerebral disturbances that some surgeons have asserted that it is invariably the etiological factor in postoperative insanity that cannot otherwise be accounted for. The absorption of ptomaines or of septic material from infected wounds may occasion psychical disturbances quite independent of operation, while organic diseases of the kidneys, of the intestinal tract, or of the central nervous system, may first manifest themselves after operative procedure, and by acting upon the cerebrum may occasion perversions which have too often been attributed to the operation itself.

If these well known causes of loss of mental equilibrium be excluded, there remains a very small percentage of cases in which there will develop after operation a usually temporary loss of mental balance, which can

only be ascribed to the psychical shock of the operation.

It does not appear that the more formidable operations produce a greater tendency to such disturbances. They are particularly likely to follow operations upon the eye, and are doubtless due in part to the fear or apprehension of the patient preceding the operation, and possibly to the confinement in the dark which such operations necessarily entail. Also it is probable that the frequency of postoperative insanity after operations upon the eye is due to the fact that many of these patients are well advanced in years and are suffering from senile degenerative processes.

Engelhardt as the result of an exhaustive study of this subject concludes that postoperative psychoses develop most frequently in those predisposed by heredity, chronic intoxication, age, or anxiety and fright. The shock and exhaustion incident to operation can be regarded at most as the exciting causes in those with distinct predisposition. There are, however, exceptional cases which cannot be well accounted for.

As for the therapeutic indications, care in the use of iodoform, the skilful administration of anesthetics, attention to the condition of the alimentary tract and of the kidneys, and some attention to allaying the terror with which many patients look forward to anesthesia and operations, represent practically the only means at our disposal by which this postoperative complication may be avoided.

Reports on Therapeutic Progress

CAUSES AND CURE OF INSOMNIA.

Sawyer, the consulting physician to the Queen's Hospital, Birmingham, writes an article in the *British Medical Journal* of December 8, 1900, and tells us that in the treatment of insomnia one may find it necessary to exhibit some of the drugs which are known to us as hypnotics or soporifics, which are remedies that induce sleep. When you have to deal with a case of insomnia, do not assume that you must of necessity give a hypnotic drug. Dr. Sawyer's advice is rather to assume that you can cure a given case of insomnia by understanding its particular causation and by remedying the same, than by attacking the effect by dosing with some hypnotic. Give hypnotics only in exceptional cases; only administer such drugs when you cannot help it. Experience in practice will enable us to decide, with increasing precision, when such an exceptional case is before us. We must rely whenever we can upon an intelligent causal treatment of insomnia, and upon a judicious employment of some of the non-medicinal helpers of sleep which he proceeds to describe. As a rule the successful treatment of a case of sleeplessness follows from the discovery of its cause. In the severer forms of psychic insomnia we must often secure sleep at once by the action of some efficient hypnotic. Dr. Sawyer prefers opium or chloral. By the use alone of one of these drugs we can often quickly cure acute insomnia depending upon some sudden mental shock or strain. It will be found that a few nights of sound and sufficient sleep, artificially induced by the exhibition of a reliable hypnotic, will do more than anything else to restore to the brain the power of sleeping without further aid from drugs. Besides chloral hydrate, opium, morphine, and the other soporific derivatives of opium, the chief hypnotic drugs are sulphonal, trional, paraldehyde, amylene hydrate, and the bromides, to which may be added alcohol and affusion of the head with cold water. For details concerning the comparative methods and demerits of chloral hydrate, paraldehyde, amylene hydrate, sulphonal, and trional, he refers to the admirable writings of Professor Binz.

Sir Lauder Brunton insists upon a well recognized and valuable consideration, namely, that a combination of hypnotics is sometimes more successful than any of them singly. He recommends a combination "of small quantities, such as 5 or 10 minims, of solution of opium or morphine, with 5 grains of chloral and 10 to 30 of potassium bromide." These and other hypnotics may be variously combined to meet the indications of each particular case, according to the judgment of a skilful adviser.

As a warning, Dr. Sawyer speaks very plainly and seriously of the risks which attach to the administration of powerful hypnotic drugs. Many human lives are yearly lost as the consequence of the taking by sufferers from insomnia of overdoses of hypnotics. All drugs which produce sleep as a physiological effect, and the relief of insomnia as a therapeutic action, with the exception, perhaps, of the bromides, produce stupor rather than sleep in overdoses, which deepens into the sleep which knows no

waking when they are ingested or injected in larger doses still. So never allow a patient to dose himself with hypnotics. Keep the matter quite within one's own secure hands, within well recognized limits of safety. In the less acute and more chronic forms of psychic insomnia, where the sleeplessness or wakefulness usually depends upon prolonged worry or overwork, he employs chloral or other powerful dormitives sparingly. They should only be used as temporary remedies when it is necessary to secure at once a fair amount of sleep. A patient should never be allowed to swallow chloral or any other of the dangerous but valuable hypnotics whenever he feels so disposed, neither should he apportion their doses for himself; he can only safely take them under direct medical control and observation.

Another important point must not escape from view. It is this: an overworked man or woman must never be permitted to go on with his or her overwork and habitually secure sleep by chloral or any other hypnotic. In such a case we must relentlessly aim at preventing the sleeplessness by removing its cause, instead of pursuing the illogical and precarious course into which a patient would often persuade us of permitting that cause to continue, and of trusting to counteract or suppress one of its effects by medicine. Work which prevents due sleep is dangerous work. When a man cannot sleep because he works his brain too much, we must make as a condition of our help that he stop or greatly lessen his labor; especially should he abstain from mental work for some hours before going to bed. In many persons the cerebral hyperemia of severe mental toil does not fall down to the circulatory limits required for healthy sleep for several hours after cessation of such work. We must, however, be wisely suspicious as to accepting work as a cause of insomnia. Nature provides that disposition to rest shall follow work. It is mostly worry, not overwork, or it is work under wrong conditions, which brings unrest.

Whatever the cause of insomnia, a holiday, with complete change of scene and with distinct change of activities, will often do much to cure. So great is the curative influence of new surroundings and of new outlets for energy, in many cases of psychic insomnia, that we cannot do without drugs. Potassium bromide is by far the best hypnotic in well nourished patients and in the slighter cases generally. It is marvelously powerful in producing nervous calm; it is a direct and quite safe brain sedative. But it must be given properly, and in full doses; after getting into bed thirty to sixty grains dissolved in water should be the dose. Sometimes we may usefully combine with it some drug which will favor the contraction of the weakened cerebral blood-vessels. For this indication we may give tincture of ergot or tincture of digitalis, one or both. In many cases of chronic wakefulness arising from prolonged mental strain, the patient is distinctly anemic. The insomnia cannot be cured unless the anemia be cured. The pallor of the patient's face, the lightened tints of his visible mucous surfaces, and his soft and small pulse, declare the condition of his blood. Such a person mostly feels drowsy when he is up, and wakeful when he lies down. He needs hematinics, of which the best are iron and arsenic, singly or combined. His diet must be generous, containing plenty of fish, meat, and eggs. For such a patient alcohol is often the best hypnotic. The prescription of alcohol as a remedy in disease is often difficult and sometimes dangerous. To many people a nightcap of toddy is a superfluous, perhaps hurtful, luxury. It gives, however, perhaps better than anything else, rest and sleep to the worried brain of feeble persons whose blood is poor. If Sawyer is sure of anything in therapeutics, he is sure that alcohol is the best hypnotic in many cases of chronic psychic insomnia, when the patient is worried and weakly, sorrowful and anemic. We need not exaggerate our responsibility in the prescription of alcohol, but we should never forget it. Dr. Sawyer has been accustomed to insist that when we use alcohol, in the form of many of the fluids which contain it, in the treatment of insomnia, we should explain to our patient the reasons for the employment of the remedy, and that we should discontinue its use, as we discontinue the use of other drugs, when the conditions which called for its exhibition shall have disappeared.

There are many other matters to which we must give attention in the treatment of chronic psychic insomnia, if we would follow Dr. Sawyer's advice that we should only give hypnotics in exceptional cases, and only when we really cannot obtain a successful result without them. He then mentions the more important of such details.

Some of them we will find useful in some cases, in other cases useless. How best to

combine them in any given case experience will teach us. First, whether he sleep well or ill, the patient ought from day to day to go to bed and to get up at fixed and regular times. Lying in bed in the morning is not a remedy for insomnia. Healthy sleep is a rhythmic act. The conditions for its periodic recurrence must be supplied. An afternoon nap for half an hour or so after a meal, with the feet kept warm before a fire, is helpful, and Sawyer has found in practice that it conduces to rather than hinders better sleeping in bed at night. Again, daily bodily exercise in the open air, but always short of great fatigue, must be enjoined. What is called carriage exercise is better than no outdoor change at all, but walking is a far better exercise, and cycling better still, and riding on horseback the best of all. A worn and worrying man, habitually wrapped up in an absorbing torture of self-consciousness, exaggerating his subjectivities, and sleeping badly, must come out of himself, and blot out his self-consciousness with the saving graces of objectivities, when he mounts a cycle or a horse's back. Gardening in the open air, not in conservatories or hothouses, affords good exercise, and it is very efficient in keeping up objective attention.

Dwellers in towns may find good objective employment of a kind counteractive of insomnia in various physical exercises and "drills," in fencing with foils, and in other similar recreations, all of which we must learn to understand in their several details, so that we may prescribe them intelligently to suit the particular needs and aptitudes of individual patients; many may at least copy Archbishop Whately, who remedied the strain of his logic by splitting his logs, and give their minds a refreshing and recreative objective bent, and their muscles healthy work, by cutting up firewood. As to sunshine, he welcomes the present therapeutic worship of the sun; free and long daily exposure to sunshine is a valuable adjuvant in the cure of insomnia. Again, many people have acquired more or less insomnia in the acquisition of the bad habit of thinking out their affairs upon getting into bed.

In such cases especially, and in the cure of insomnia generally, people who find it difficult to get off to sleep have been advised to count monotonously, one, two, three, up to a thousand or more, until they fall asleep; to picture some familiar scene, and keep the mind fixed upon it; to repeat the letters of the alphabet over and over again. The late Dr. Pereira gave some interesting illustrations of the well known fact that the repetition of monotonous impressions on the senses of hearing, seeing, or touch are provocative of sleep. One passage from his monumental work on remedies is quoted. Speaking of monotonous impressions in the therapeutics of insomnia, he wrote: "This is the principle of the 'method of procuring sound and refreshing slumber at will' recommended by the late Mr. Gardner, who called himself the hypnologist. His method was for a time kept secret, and was first made public by Dr. Binns. It is as follows: Let the patient turn on his right side, place his head comfortably on the pillow, so that it exactly occupies the angle a line drawn from the head to the shoulder would form, and then, slightly closing the lips, take rather a full inspiration, breathing as much as he possibly can through the nostrils. This, however, is not absolutely necessary, as some persons always breathe through their mouths during sleep, and rest as sound as those who do not. Having taken a full inspiration the lungs are then to be left to their own action—that is, the expiration is not retarded too much, but a very full inspiration must be taken. The attention must now be fixed upon the action in which the person is engaged. He must depict to himself that he sees the breath passing from his nostrils in a continuous stream, and the very instant he brings his mind to conceive this apart from all other ideas, he sleeps. 'The instant the mind is brought to the contemplation of a single sensation, that instant the sensorium abdicates the throne, and the hypnotic faculty steeps it in oblivion.'"

These various methods seem to be devices for changing the current of conscious cerebration. In his practice Dr. Sawyer has found the plan of taking deep inspirations commended. But for the most part these expedients succeed for a night or two, and they can scarcely be relied upon. These sundry practices may even keep up wakefulness; when the mind attends to them too closely, they may sustain the self-consciousness which keeps the brain from resting. To try hard to go to sleep is often the surest way to keep awake. We do many things best when we forget ourselves, and going to sleep is no exception to the rule. Again, to promote the sleep of a person in bed, you should make sure that the bedclothes which cover him are sufficient and not excessive. If the covering bedclothes be especially arranged

in quantity each night by thermometric guidance, so as to secure that the thickness of the upper clothes will give to the inmate of the bed a general feeling of comfort, and not of sleep-preventing discomfort from either local or general chilliness or local or general overheating, sleep will be powerfully promoted. And further, if these arrangements be made with the knowledge and approval of the patient, we may gain the valuable adjuvant of his self-confidence as to sleeping, and establish within a happy expectation likely to be realized. For our guidance he tells us that from observations he has made he has found that in a large bedroom in the middle of a large house, without a fire or other mode of heating, and with a window open, a Fahrenheit thermometer stood at 70° or upwards in very hot weather, and at 44° or less in very cold weather. At a temperature of 44° the upper bedclothing should be a sheet, three blankets, a light counterpane, and a light small blanket, not "turned over" at the top, and not "turned in" at the bottom; while at a temperature of 70° it should be a sheet only. Between these extremes the changes should be gradual. The extremes should be the ends of a series of gradations passing through about nine terms. With a little care we can make a thermometer register, marking the suitable clothing for a given external temperature of the bedroom in any particular case, and so may cure insomnia and prevent its recurrence.

In all cases the bedroom window should be open all night and all the year round, and arranged so that it may be so without draught; the head of a bed should be away from a wall; and the best bed on which to lie is a hair mattress, covered with a sheet and a blanket and supported upon a chain stretcher. In some cases a little food taken just at the time for sleeping is an efficient soporific. We often observe that the good effects of a little nourishment—a cup of cocoa, or a small piece of dry bread—taken upon getting into bed, or upon awakening after a slumber which is too short for a night's rest, are most happy. We may usefully remember that sleep may often be induced by the temporary application of cold to the head or to the general surface of the body. A person who has been lying awake will often fall asleep at once upon regaining his bed after getting out of bed and sousing his head, neck, and hands in cold water, or after following Charles Dickens's plan of standing at his bedside until he feels chilly, and thereupon shaking up and cooling his pillows and bedclothes, and then getting into bed.

In the toxic kinds of insomnia we must especially endeavor, as already suggested, to act upon the maxim, "*Cessante causa, cessat et effectus.*" We must stop or lessen the consumption of tobacco, alcohol, tea, etc., as the case may be. A discussion of the treatment of gouty insomnia, and of the sleeplessness arising in some chronic kidney diseases, would involve a consideration of the whole question of the therapeutics of the maladies upon which these forms of wakefulness depend. Senile insomnia is very obstinate. Perhaps in the bromides, with full doses of hops or henbane, we have the most efficient and least harmful medicinal means of relief; while the promotion of sleep may be accomplished by an intelligent combination of some of the non-medicinal measures to which reference has been made.

THE PREVENTION OF NAUSEA AND VOMITING DURING ANESTHESIA.

In the *New York Medical Journal* of December 15, 1900, HIRSCHMAN reminds us that one of the most annoying things in connection with the administration of chloroform and ether as general anesthetics is the almost invariable nausea and vomiting produced by their inhalation. The patient, if a person of extremely nervous temperament, is usually nauseated when the administration of the anesthetic is started; or, if he is a person of strong and robust build, during the stage of excitement. He may escape, however, until the operation is well under way, when, if allowed to come out of the anesthetic for any reason whatever, he invariably begins to gag and usually to vomit. In quite a number of cases there is no trouble until the patient is returned to his bed, and allowed to recover from the influence of the anesthetic, when repeated attempts to vomit sometimes undo the good work of the surgeon or gynecologist.

In hospitals, and particularly in those in which a great many surgical operations are performed, it is quite the usual thing, in making the evening rounds after a heavy day in the operating rooms, to hear from all sides a continual retching. Think how this increases the discomfort of the poor sufferer, how it sends up pulse and temperature from sheer exhaustion, and how wearing it is on the already weakened patient! Think, also, of the effect (particularly in wards) on con-

valescing patients and on those who have just passed through a similar ordeal! We all know how sensitive the majority of people are to the sight or sound of vomiting. Think of the feelings of the new patients who have come in for an operation on the morrow, and who must feel that a similar experience awaits them! These are things which we, as physicians, must consider, and if there is a way of alleviating them, the sooner we adopt it the better.

The new drug, chioretone, is a very valuable hypnotic, antiseptic, and analgetic. A one-per-cent aqueous solution is said to be equal to a two-per-cent solution of cocaine hydrochloride for local anesthesia. Chloretone has the advantage over cocaine of having antiseptic properties, and it has no bad systemic effects. As a hypnotic, it seems to act upon the central nervous system, and in doses of eight to twenty grains (a drachm if necessary) it has a most excellent effect; it is not a depressant to the circulatory and respiratory systems. Dr. Hirschman mentions these uses of the drug incidentally merely as a matter of general knowledge, born of actual experience while he was connected with the Harper Hospital and since. The subject of this paper, however, demands the discussion of the use of chloretone in connection with the prevention of the nausea and vomiting occurring during anesthesia.

The proposition which presented itself to the writer was this: If vomiting at the beginning of and during the anesthesia is reflex, and if the vomiting following is due partially to reflex action and largely to the swallowing of the supersecretion of mucus resulting from the action of the anesthetic on the mucous membranes, why should not a drug which is not a depressant, which is both a local anesthetic, with pronounced effect on mucous membranes, and a sedative to the central nervous system, be used before anesthesia to prevent the coincident gastric disturbances?

In accordance with this line of thought, while he was a member of the resident staff of the Harper Hospital, Hirschman began giving chloretone to patients before anesthetizing them. It was given in doses of ten grains to women and boys under sixteen years of age, and of fifteen grains to men, half an hour before the anesthetic was to be started. If the patient does not object to it, he prefers giving it dry on the tongue, and following the administration with an ounce or two of warm water. It may also be given in capsules; but the three-grain sugar-coated tablets now on the market are not so desirable in this connection, because of the number of tablets necessary to make the required dose, and because the sugar coating and compression delay absorption somewhat. When the time for administering the anesthetic comes around, the patient who has had chloretone is calm; nervousness is quieted, and he is in an ideal condition. If a female, she takes the anesthetic well, takes little of it, and goes under without a murmur, and one almost forgets that there ever was a stage of excitement.

It takes from seven to twelve minutes to completely anesthetize with chloroform, and up to fifteen and eighteen with ether. Patients who have had chloretone require less of the anesthetic, and are not so apt to come out of the anesthesia suddenly during the operation, if the administration of the anesthetic is lessened temporarily.

Hirschman personally has observed sixty cases in a space covering a little over three weeks. Half of the patients received chloretone, and the other half, for the purpose of comparing results, did not. The operations were of the same class, the operators were the same, and he personally gave the anesthetic in nearly all cases. The amount of anesthetic in the cases of patients receiving the chloretone was from one-third to one-half less than in those not receiving it, and in none of the thirty receiving the drug was stimulation required during the anesthesia. Out of the thirty receiving chloretone, none was nauseated while being anesthetized, and three, or ten per cent, were nauseated, and only one of these vomited more than twice, on coming out from under the influence of the anesthetic. Of the thirty less fortunate patients who did not receive chloretone, twenty-four, or eighty per cent, were nauseated and vomited, and nineteen of them were still unable to retain liquid food on the following day; in some of these the nausea and vomiting persisted at intervals for three or four days. The benefits of chloretone in this connection are self-evident. The difference of seventy per cent in its favor is the most powerful argument for it.

These thirty cases, taken in direct succession, were mostly gynecological; on account of their sex these individuals were naturally more prone to reflex nervous disturbances. It was in the hope of overcom-

ing this reflex irritability that he sought for a remedy, or, to speak more accurately, a prophylactic. In the cases under observation, chloroform was the anesthetic usually chosen and always preferred; ether was given only when chloroform, for some reason or other, was contraindicated, or the operation was unduly prolonged.

ORGANOTHERAPEUTICS IN MENTAL DISEASES.

EASTERBROOK closes an exhaustive paper on this subject in the *Scottish Medical and Surgical Journal* for December, 1900, in the following words:

Brown-Séquard's generalization that "all glands and tissues have an internal secretion; all injected subcutaneously have a tonic effect," undoubtedly requires modification. Dr. Easterbrook's investigations in the insane lead him to conclude that those animal extracts which consist mainly of simple proteids (albumen and globulin) and albuminoids merely have a dietetic value; but that those animal extracts which are rich in nucleins and nucleo-proteids produce, when given by the stomach in sufficiently large doses (as 60 grains daily of the dried extract and upwards), a temporary stimulation of cell-catabolism with a subsequent anabolic reaction, this being evidenced by the common increase of the water, total solids, urea, and phosphoric (and uric?) acid of the urine, by the general tendency to a subfebrile pyrexia, and perhaps most important of all by the initial loss in weight followed by a gain. This initial catabolic stimulation with its resultant anabolic reaction is in his opinion the explanation of the physical improvement or "tonic effect" which occurs in a fair proportion of cases (usually under fifty per cent), and which if pronounced may be accompanied by mental improvement and even by mental recovery. In this sense, therefore, these substances may be termed metabolic tonics, and it is probable that in the living body those organs (cellular) which are naturally rich in nucleins and nucleo-proteids produce, in virtue of the metabolism of these substances, similar distinct "tonic" effects upon the general cell-metabolism.

In the administration of animal extracts in disease generally Easterbrook thinks it of the utmost importance to recognize the fact that many of them (apparently those rich in nucleins and nucleo-proteids) may produce this tonic effect. It explains many of the discrepancies in the results obtained by various workers in the various fields of disease, and it should save one from the fallacy of attributing to various extracts specific effects in diseases in which, *a priori* on the "internal secretion" hypothesis, their use seems to be specially indicated, these effects being in reality the general tonic effect of a certain group of animal extracts. Apart from the general tonic effect upon cell-metabolism, it is extremely doubtful whether each organ possesses a specific internal secretion in the sense intended by Brown-Séquard. Some organs probably have such an "internal secretion"—for example, the active principle (sphygmogenin) of the suprarenals, which powerfully increases muscular contraction and apparently diminishes tissue oxidation. So also the thyroid extract stands far above all others, and when it is administered in large doses the anabolic reaction never sets in until after the cessation of the drug; whereas, in the case of all the other "metabolic" extracts which have been used by him, an anabolic rebound generally sets in during the continuance of the drug.

THE THERAPEUTIC ACTION OF HEROIN.

The *Boston Medical and Surgical Journal* of December 13, 1900, has in it an article on this topic by LAZARUS, whose clinical experience consists of thirty-eight cases treated in the hospital and fourteen in private practice, and comprises pulmonary tuberculosis, bronchitis, asthma, pneumonia, laryngitis, coryza, rhinitis, and intercostal neuralgia. Under the administration of heroin hydrochloride the relief of pain, cough, and dyspnea was obtained in from one to five days. Among the fifty-two cases heroin hydrochloride caused nausea and giddiness in only two after the administration of one-sixth grain; but this disappeared promptly after the dose was reduced to one-half grain. In one case it produced gastric disturbance similar to morphine when given on an empty stomach, but this was not observed when it was administered after meals. In three cases it caused constipation, which was relieved by the addition of one-eighth grain of calomel to each dose. It will be noted in the above cases that the after-effects observed in a few instances appeared only after large doses of one-sixth grain, and promptly vanished after the dose was reduced to one-half grain.

The very thorough investigations which Lazarus has made with heroin hydrochloride

in his practice enable him partially to state that he considers this drug a most valuable aid to the medical profession. Its range of application, while originally confined to the treatment of respiratory affections, has been much extended by later observations. In pulmonary affections accompanied with coughs he would rank it as a specific, while its analgesic qualities in neuralgia and its antispasmodic effect in asthma and whooping-cough have been so well established as to entitle it to a prominent place in the treatment of these affections.

TREATMENT OF INFLUENZA IN CHILDREN.

JACOBI contributes to the *Medical News* of December 15, 1900, his views in regard to this subject. He believes the indications for the treatment of influenza may be several—the high temperature, the great discomfort, the restlessness, and the rapidly increasing exhaustion. In the treatment of many fevers it is their causes that require consideration; in others, however, their relations to, and influence on, the body are the main considerations. When the condition of the latter is fair, and no danger is incurred on account of the fever, it should be left alone; when the rise of temperature, however, by itself is injurious, it should be interfered with. At all events the treatment of the symptom "fever" gives us no hope of shortening the disease in which it occurs, or of which it forms a part; on the other hand, it is a satisfaction to know that while we increase the comfort and diminish the immediate dangers, the natural healing process is not disturbed. In this way both the justification and the limitation of the so-called expectant treatment become evident. To allow a high temperature to deteriorate tissues and exhaust the heart or brain is as injudicious as is the custom of emphasizing the number of degrees of Fahrenheit as the only valuable part of a morbid process. To be satisfied with depressing temperature is a grave mistake, but to allow pneumonia to run its deleterious course of high temperatures unchecked, with their full influence on the rapidity of respiration and the action of the heart, and on the increase of waste, is equally injudicious.

In their injurious influence on nutrition protracted infectious fevers act, first, like direct losses or like starvation, and secondly, as immediate poisons. The younger the patient the greater is the danger from that source. That is why a high temperature without any or with a trifling remission should not be allowed to last, though its immediate effect may not appear very ominous. When a high temperature results in a convulsion we never hesitate to reduce it; here we admit there is a vital indication. Why, then, not reduce it while there is the danger of a possibility or probability of its occurrence? Add to these facts the disposition of the young to inanition, which is caused by two main factors. The first is their rapid metabolism; the second and principal one is the relative, almost universal, insufficiency of the young organisms.

Moreover, we should not forget that most of our antipyretics are at the same time nervines, analgesics, and diaphoretics, thus improving comfort and metabolism. They are surely indicated when bathing is not sufficiently efficient or when baths are contraindicated; in that case they may act as adjuvants, as combinations, and procure sleep and remissions. Jacobi adds that there are, however, contraindications to the use of medicinal antipyretics because of possible idiosyncrasies and of the debilitating effects which many of the antipyretic drugs are apt to exhibit; he merely says what all have experienced, and what everybody should remember, viz., that no degree of Fahrenheit and no Greek name of a morbid process are the subjects of our medication, but an individual patient. From these points of view our fever remedies should be judged.

In Dr. Jacobi's paper of 1890 he said that acetanilid ought to be preferred among the poor because of its low price, antipyrin mainly where great solubility was required for the purpose of its administration in rectal and subcutaneous injections, and that phenacetine was preferable to either when it could be given by the mouth, because of its less uncomfortable effect on the brain, the heart, and the skin.

This opinion he has to modify to a certain extent, not that he objects to what he said of phenacetine, but acetanilid should never have an opportunity to show what good qualities it may have in the rich or poor. It should not be used at all, under any circumstances, not even in the quack preparations which now and then disfigure the prescriptions of regular practitioners. Being a derivative of anilin, acetanilid is poisonous. Not only has it a sedative or rather paralyzing effect on the central nervous system, but it destroys the blood and causes anemia

by changing hematin into methemoglobin, though given sometimes in small doses. That is what gives rise to the cyanosis so often observed, more often than after the administration of any other of our modern analgesics and antifebriles. The poisonous effect is even noticed when the drug is used externally, mainly on the young. Examples of such cases were reported at the meeting of the Philadelphia Pediatric Society, April 11, 1899.

Antipyrin when employed during normal conditions increases the tension of the pulse and blood-pressure — therefore it is contra-indicated in hemoptysis—and produces perspiration. It works more on the general central nervous system than on the center of circulation, and that is why it acts — while being antipyretic — as a sedative and analgesic. But it should not be considered as a nervine, for its action appears to be ushered in through the mediation of the blood and blood-vessels. The body temperature begins to decrease within fifteen or twenty minutes after the first dose; to render its antipyretic effect more tangible and persistent, it should be followed by a second within two hours. This rule, however, does not hold good when the drug is given for its sedative or analgesic or for its slight anti-rheumatic effect. Its general effect is mostly good, but its undesirable effects are many. Otto Seifert quotes eighty authors of note who report disagreeable effects of antipyrin; they were observed in the gastrointestinal, nervous, and circulatory system, in the skin, and in the mucous membranes. Phenacetine is dismissed with ten. It resembles acetanilid, but is very much milder in its effects. The transformation into methemoglobin takes place after large doses of several grammes only. Half-gramme doses for antipyretic, gramme doses for analgesic, purposes are recommended. The doses to be given to infants and children should be from fifteen milligrammes to three centigrammes (gr. ¼–½).

Salipyrin, the salicylate of antipyrin, is employed by Finkler. While antipyrin causes perspiration, sometimes excessively so, he reports a case in which hyperidrosis was instantly cured by salipyrin. It should be given in twice the doses of antipyrin; it is usually better tolerated than the latter, particularly by neurotic or neuralgic patients, because of the relative absence of accidental effects.

Salophen is extolled by Drewes, of Hamburg, who prefers it to salicylic acid and to salicylate of sodium, mainly in the nervous form of influenza. Adults took from one to six grammes, children from three to five decigrammes. Finkler, who quotes him, adds: "I believe that most physicians have arrived at the point where they would not like to be without these preparations in influenza, but it should certainly not be forgotten that reports of this kind have quite frequently been used for advertising purposes."

There is something else that should not be forgotten, viz., that there is hardly a disease which has as great a tendency to cause exhaustion and numerous other nervous symptoms, from languor to heart failure, as influenza. If there be the slightest indication of such a danger, none of the above mentioned drugs should be given without the addition of a stimulant. That should, according to what he has before said, rarely be alcoholic. Caffeine preparations are vastly preferable, mainly the salicylate (or benzoate) of sodio-caffeine, which, being very soluble and readily absorbed, is most ideal in its effect. That is why in emergency cases of heart failure its subcutaneous administration may often become indispensable. The use of strychnine is so well understood and so general that Jacobi limits himself to merely mentioning it.

To what extent stimulants should be given in the average or in the grave cases depends on the general condition of the patient, and on his medical adviser's knowledge of his former health and his resisting power. It is probable that in most cases some daily doses of sulphate of sparteine, five centigrammes (gr. $\frac{1}{8}$) for a child of two years, will have a favorable effect. The caffeine preparation mentioned may be given in doses of from two to six decigrammes (grs. iij–x) daily. When it appears to act as an excitant on the brain, it should be replaced by camphor in daily doses of from one to four decigrammes. All these doses, however, should be much increased when strong stimulation is required, and in an emergency subcutaneous injections of the same drugs should be used, caffeine being soluble in two parts of water, and camphor in four parts of sweet almond oil.

One of the best stimulants, useful in the gravest of all cases which are attended with collapse and heart failure, is sadly overlooked among us, viz., Siberian musk. Jacobi knows of nothing better in the most urgent cases. A child of two years should take of

the ten-per-cent tincture five to ten minims every half-hour until half a dozen or a dozen doses have been taken. Musk, together with large, hot enemata, has led him over many a difficult pass, and he again offers this experience of his, which now extends over fifty years, as a contribution to our aid in dire distress, always, however, reminding us of the fact that all these measures are not exclusive to influenza but to all conditions of nerve exhaustion, no matter from what cause.

Finally, Jacobi alludes to a singular experience which was published ten years ago. He does not know that it has been repeated since. Goldschmidt reports as follows: "About New Year's, 1890, a lady suffering from influenza landed in Madeira and disseminated the disease in a short time. Two months previously there had been an epidemic of smallpox, and numerous vaccinations and revaccinations were performed. Now, it so happened that all those who were successfully vaccinated — 112 all told — remained free of influenza. Of ninety-eight who were vaccinated unsuccessfully, only fifteen took sick." The author concludes from this experience that successful vaccination is a preventive against influenza. But as yet there is not enough known to justify any such conclusion with anything like certainty. Still it suggests the possibility of a future serotherapy for influenza and its very serious consequences.

DIETETIC TREATMENT OF DIABETES.

N. S. Davis, Jr., in the *Journal of the American Medical Association* of December 8, 1900, reminds us that mental depression and excitement are extremely harmful for diabetics. Whenever possible, they should be freed from business care, family troubles, or a life of excitement. During the last few years of wide-spread financial embarrassment Dr. Davis has frequently been able to trace the effect of sorrow and anxiety in the increasing physical trouble of his diabetic patients. Sexual excess should also be avoided by them.

The skin should be kept active by baths and friction. The patient should be carefully protected by woolen or silken underwear from sudden temperature changes. Regular exercise, and if possible outdoor exercise, should be taken to insure deep breathing, good oxygenation of the blood, and vigorous metabolism.

The following menu will illustrate what should be prescribed while a strict diet is maintained. On "fast days" a limited amount of these same foods should be recommended.

Breakfast: Tea or coffee without sugar or cream, one egg and bacon, and two or three slices of nut-bread with butter (Chicago Sanitary Flour or similar substitute for wheat flour).

Dinner: Bouillon or broths; beef, mutton, or chicken, spinach, or asparagus, or wax beans; salad of lettuce or tomatoes, with cheese; black coffee without sugar.

Supper: Tea or coffee without sugar or cream; meat or fish, or mushrooms, a salad of tomatoes or lettuce, or chickory, etc.; two or three slices of nut bread.

At bedtime, or in the evening, an egg-lemonade made with saccharin can be given.

Use as much butter as possible on bread and oil salads; eat by preference fat meats.

When a strict diet must be maintained, the cook should endeavor to furnish as large a variety of dishes by skilful preparation from the limited number of articles as possible.

When patients keep a "fast day" it is best to prescribe only two meals a day, one at breakfast time and one about six in the evening. At noon, if it is desired, an egg lemonade made with saccharin can be taken. The amount of food eaten at the two meals should also be limited.

THE SURGEON AND THERAPEUTICS.

Under this caption the *Bulletin of the Cleveland General Hospital* speaks editorially. It tells us that not long since a brilliant young operating surgeon declared to the writer his total unbelief in the curative effects of medicines. He challenged us to point out one remedy that was certain and unfailing in its effects. To surgery and the progress of surgery he gave all the glory of the nineteenth century. Medicines were fads; therapeutic results, delusions; medical treatment, a hoax. He represents perhaps the most partisan school of the younger lot of surgeons who are rapidly becoming therapeutic nihilists. Illogically enough he did not deny the palliative effect of drugs or their convenience in affording a patient relief, but cure was only to be attained through surgical measures. The patient upon whom he had just finished a most brilliant operation succumbed three days later from ether pneumonia. Every one of the patients he had operated upon were made fit to bear the operation only through the therapeutic ef-

fects of anesthetics. The surgeon did not discover the anesthesia that removes surgery out of the brutal butchery of force, the knife, the kettle of boiling pitch, and the hot iron.

The reader may think this is an overdrawn picture of the nihilistic tendencies of the average operating surgeon, and we own it to be an aggravated case, but conversation and association with the younger men of the craft convinces us that the great majority of them are ignorant to an alarming degree of the necessary therapeutic knowledge and art which can alone make the surgeon great. A man must be a great physician in order to be a great surgeon. He may perform amputations and do laparotomies in a most destructive and rapid manner. He may even be able to diagnose with precision and certainty. He may be thoroughly acquainted with the surgical literature of all times. He may have written a book and acquired a wide reputation, and yet fall far short of being a good surgeon because he is not a good doctor.

We are already experiencing some reaction from the results of the *furore operandi*, especially in relation to utero-ovarian surgery. Perhaps a better example is the surgery of tuberculosis, especially of the juvenile type, which is characterized by arthritic and osseous affections. When Koch discovered the specific germ of tuberculosis and demonstrated that disease to be infectious beyond all question, it was then hoped and confidently believed by the surgeon that an early operation and a complete removal of the focus of infection from the invaded point or bone would certainly result in cure. We have been disappointed. The surgeon soon found that his ability to recognize the limitations of the disease and stop it at its boundaries, leaving intact the normal parts, was absolutely lacking. To-day not ten per cent of the cases of this class are operated upon that were ten or fifteen years ago. Dr. Ridlon, of Chicago, has recently stated that not one per cent of such cases are in need of a surgical operation. This taking of such a large percentage of the cases out of the surgeon's hands and placing them where they properly belong, under the care of the general practitioner, who has the ability to perform the duty of building up the weakened constitution of the tubercular patient, is a most noteworthy one.

Tubercular infection is perhaps the most wide-spread of any one of the grave infections. Under most circumstances it is the most benign. In fact, it is a little doubtful if, with an ordinarily hardened constitution, tuberculosis in most parts of the body does not always tend toward spontaneous recovery. The last ten years of accumulated experience of operations for the cure of bone and joint tuberculosis has forced the surgeon to look toward therapeutic resources in order to save the patient. The results have compelled him to abandon a treatment that has produced little else but failures and cripples, and seek to eradicate the disease through a well ordered course of medical and hygienic treatment. Of course, when the disease has advanced, has destroyed a joint, has honeycombed a bone, has invaded the peritoneum, has become mixed with other infections and produced large pockets of pus, or attacked organs that are beyond the reach of most therapeutic measures, or which are suffering from some continually irritative disturbance that will not permit of their healing, then the surgeon's knife alone can save. The need of the profession is more surgeons who are better doctors, and more doctors who are better surgeons.

TREATMENT FOR SCARLET FEVER.

Pediatrics for December, 1900, has in it an article by KEMP in which he gives the following directions:

Elimination of the toxins of scarlatinal nephritis should be increased by improving the renal secretion, and skin and bowel action.

Plenty of water (boiled), and cool, but not ice-cold, is one of our best diuretics and eliminatives. Alkaline mineral waters are also excellent. Dr. Holt finds water to which a small dose (2 or 3 grains) of an alkaline diuretic, such as citrate of potash, has been added to be of value.

The bowels should be kept freely open by saline cathartics, so as to secure one or two loose movements daily.

The skin should be kept in good condition by frequent sponging and warm baths.

Absolute rest in bed should be insisted upon. In fact, in general, the suggestion of Dr. Winters that bed treatment in scarlatina should be of six weeks' duration is excellent. We agree with him in so far that scarlatinal nephritis may occur in a mild case of the disease, and that exposure to cold or draughts of air during desquamation, or, in fact, anything that may cause interference with the

proper performance of the functions of the skin, may be an accessory factor in causing nephritis or an exacerbation of the same.

The diet should be milk or one of its derivatives—milk and lime-water, or milk and Vichy, peptonized milk, buttermilk, matzoon, kumiss, leben, whey junket, malted milk, a thin gruel mixed with milk, or barley-water and milk.

Most of the mild cases tend to spontaneous recovery under rest in bed, fluid diet, plenty of water, and the proper attention to the skin and bowels.

Some of the iron preparations, as tincture of the chloride, have often to be given on account of the marked anemia, and a little solid food (farinaceous) must be cautiously employed if there is great loss of weight.

If the disease tends to become subacute or chronic, change to a warmer climate may be necessary, and flannels should be worn next to the skin in such cases.

We believe that care exercised from the incipiency of scarlatina will lessen the chances of a scarlatinal nephritis, such as the absolute restriction to fluid diet (milk or derivatives), plenty of water, attention to the skin and bowels, and rest in bed, even in the mildest cases. The febrile albuminuria, or in fact any renal disturbance whatever, should receive treatment, as even such condition might become one of acute congestion of the kidneys; hence diaphoretic treatment, as hot baths, etc., should be employed and diuresis be produced. It seems to us that too little attention is given to these so-called "temporary and unimportant" conditions. The plea that the average busy practitioner has "no time" for examination of urine once a day in such cases has no more weight than that of a man who has no time to attend to the details of his business. The simple boiling test for albumin and urates and obtaining specific gravity requires little time, or it is easy to secure assistance in such work. The microscopical examination could be made every other day for the first two weeks. We believe in such precautions throughout the disease from its incipiency.

In severe cases with scanty urine, fever, and marked dropsy, Dr. Holt advises the hot pack or vapor bath, and even pilocarpine hypodermically, one-sixtieth of a grain to a child three or four years of age. To counteract the depressing effects of this drug stimulants should be given at the same time. There should be active counter-irritation over the kidneys by dry cups followed by poultices or mustard paste. Rochelle or Epsom salt he advises as best to secure two or three loose movements, or calomel, but depletion should not be carried too far.

In suppression with uremic symptoms, high temperature, delirium, pulse of high tension, etc., the author advises nitroglycerin ($\frac{1}{300}$ grain) every hour for three or four doses to a child of five years, or until an effect is produced.

Uremic convulsions at times can be averted by the use of morphine, but venesection is the most rapid and certain to give relief. Two to six ounces of blood from a child of five years may be taken, according to the general condition or urgency of the symptoms. The improvement, though often only temporary, gives time for the employment of catharsis, diuresis, and other measures. The venesection may be followed by an infusion of normal saline solution at 120° F. (one drachm of salt to water one pint). The amount introduced would be nearly twice that of the blood taken. This overcomes the depression effects and acts to wash the blood, and aids elimination. One should watch for complications, such as dropsy of the serous cavities, pericarditis, endocarditis, or pulmonary edema.

THE TREATMENT OF ARTERIOSCLEROSIS.

In the whole range of medical practice, there are probably few conditions that are of more importance than the recognition and proper treatment of arteriosclerosis. As is well known, it comes on at varying ages, and is much influenced by habits and occupation.

The hardening and contraction of the arterioles are often the earliest intimation of what in later years will be serious heart or kidney diseases, or an attack of apoplexy. No doubt this condition has not received the attention it merits. It is the duty of the medical adviser to note and point out tendencies toward certain diseases, as well as to recognize and treat diseases that may be actually present. Prevention is a much more valuable service to a patient than the treatment of his complaint after its advent.

It is now generally admitted that the rheumatic and gouty condition favors the occurrence of rigid arteries. Certain poisons, as lead and alcohol, have also a share in the etiology of this state; so, also, have those forms of life that give rise to overwork and overworry. But perhaps no cause

stands out so prominently as wrong habits of diet. Jonathan Hutchinson has well remarked that there is no diathesis that is harder to fully establish than the gouty one; but when once established, there is none more difficult to get rid of, or more liable to have far-reaching effects upon the general health.

Setting aside the cases of arteriosclerosis due to lead poisoning, overwork, and worry, the majority of cases are of dietetic origin. The improper indulgence in foods and drinks is the *fons et origo malorum*. This being the case, what should be done?

In the first place, all persons with a tendency to rigid arteries should be prohibited alcoholic drinks. It is no longer necessary to argue this question. The patient must be cautioned against all forms of violent exercise or overwork; and further, he should be advised to arrange his affairs so as to have as little worry as possible. Butcher meats should be reduced; better still, cut off altogether. There is no fear of the patient starving. Enough animal and nitrogenous products can be obtained from milk and a little egg. In bread and many vegetables there are nitrogen-bearing compounds. The elimination from the dietary of alcoholics, meats, salmon, lobster, game, turkey, goose, duck, cheese, beans, the more highly nitrogenous foods, will, in time, relieve the system of those waste products that are instrumental in causing rigidity and contraction of the arterial system.

The emunctories should be kept active. The skin and kidneys should be made to do active duty. This can always be brought about by inducing the patient to drink plenty of water. Water once introduced into the system must come out somewhere, and its main channels of exit are the skin and the kidneys. There is no better solvent than water. It dilutes the bile and the urine, lessening the tendency in these cases to gall-stones and renal calculi. It dilutes and washes out of the system the compounds of uric acid that act so injuriously on the liver, kidneys, and smaller arteries.

With regard to drugs there need not be much said. If the hygienic and dietetic treatment be carefully observed, there will not be much need for drugs. One drug, however, deserves special mention. Potassium iodide is the drug of the arterial system. It need not be given in large doses; two or three grains in water, after meals, will prove quite ample. It will act better and cause less annoyance to the patient if it is combined with an equal dose of carbonate of ammonium.—*Canadian Practitioner*, December, 1900.

THE ABUSE OF DRUGS.

If one were to answer the question, What is the greatest abuse of the present day? it would be the indiscriminate taking of drugs as proprietary nostrums. The mischief that is constantly being done to the community by taking so much proprietary medicine is enormous. In the first place, the people are induced, by the wiles of the advertiser, to take some preparation, of the composition of which they know nothing. In this way very harmful drugs may be introduced into their systems. In some cases a dangerous craving may be acquired for the narcotics which enter into the composition of some of these nostrums. Persons are often taking drugs when they have no need for them. On the other hand, by the use of these drugs they are often laying the foundation for serious trouble.

In the next place, many persons take it upon themselves, by the aid of advertisements, to diagnose their own cases and prescribe for themselves according to the fancy that may strike them, as the result of the study of these advertisements. Wrong drugs are thus usually taken, and valuable time lost to the patient.

Another feature of the sale of medicines, as placed before the public by the nostrum vender, is the claim of curative powers that do not exist in any drug, or combination of drugs. All forms of heart disease are cured, no matter whether functional or organic. The kidneys in like manner are made to yield to the potency of some so-called cure; the granular contracted kidney once again assumes its normal shape, size, and texture; the rigid arteries become soft and flexible; and the health is again restored to its former vigor. All the experience of the medical world is given the lie. The crumpled, broken-down heart valves, and the small, hardened kidneys, are again compelled to do duty of perfect quality.

In all this we have the most monstrous fraud and deception. In some cases it is ignorance, so far as the vender is concerned, but in the majority of instances there is wilful deception for the love of gain. It is fraud of the most diabolical sort, and should not be tolerated for a single day. No man should

be allowed to advertise a quality for his goods which they do not possess. It is a variety of confidence game, or practice, that invariably humbugs the buyer and fraudulently enriches the maker.

The law is not strict on the sale of poisons, and certain noxious drugs; and yet, under the name of some proprietary article, bromides, chloral, opium, cocaine, alcohol, ergot, etc., can be obtained in any quantity.

A female regulator is put upon the market; an analysis shows it to contain ergot, savin, aloes, iron, hellebore, cotton-root, etc. Here you have an ideal abortifacient, as far as drugs are capable of accomplishing such work. Yet, if a physician gave a prescription for such a purpose, or introduced a sound, he would stand in the eyes of the law as a heinous criminal. But the proprietary medicine man can put such a compound upon the market, and in the advertisements suggest to the public what it is for, and nothing is done to him.

Here then is a crying evil. What is the remedy? One would be to prohibit the sale and advertising of proprietary medicines, but especially if they contain any of the drugs in the poison or noxious list. It may be some time before our legislators can be educated up to this standard. There then remains a partial remedy that should at once be put in force—the exact composition of every proprietary medicine should be printed in plain language on the wrappers. In this way the people could see for themselves that some greatly vaunted medicine was only ditch water. Further, these nostrums would be ordered off the market if they contained noxious or poisonous drugs.—*Canadian Practitioner*, December, 1900.

BOILS AND CARBUNCLES AND SOME POINTS IN THEIR TREATMENT.

Birdwood states in the *Indian Medical Gazette* for November, 1900, that bearing in mind the fact that the disease is probably due to a microorganism, the following points in treatment, not generally noticed, may with advantage be considered:

1. Pay scrupulous attention to personal cleanliness of the patient. Insist, as far as possible, on frequent changes of soiled linen. Pillow-cases may easily become infected when boils are in the neck, and may thus be the source of a crop of boils.

2. When the boil first appears, have the locality thoroughly shaved, then well washed with carbolic lotion, then dried and covered with a soft antiseptic pad. Bathe also with antiseptic lotion night and morning. These measures will tend to check the spread of boils in the neighborhood.

3. In a household, if one child gets a boil it is advisable to isolate him as far as possible from the other children till his boil is cured.

4. In a case of boils tell the patient to avoid washing the skin with irritating soaps, and do all you can to allay the irritable condition of prickly heat, which is in one way a predisposing cause.

5. When suppuration is established, the discharge should be received on absorbent antiseptic dressings. The patient should be cautioned not to squeeze the boil himself and receive the discharge on to a handkerchief or any piece of linen, which then becomes infected and is often left lying about.

6. Spraying the boil with carbolic lotion (1-in-40) twice a day for ten to fifteen minutes, as recommended by Whitla, will do much good; also small plugs of lint saturated with pure carbolic thrust into the mouths of a carbuncle seem to accelerate suppuration and to allay irritation.

7. Birdwood has found free incision across a tense boil gives considerable relief, but most will agree with Sir J. Paget that incision of a carbuncle has nothing to recommend it. Mr. Ruston Parker's treatment of excision and scraping in some cases of carbuncle seems to have much to recommend it. It is somewhat similar to the surgical treatment of malignant pustule. Under chloroform there is excision of the walls and free scraping out of the slough, and then the application of pure carbolic acid to the base. The cases in which this treatment is suitable are those cases of indolent chronic carbuncles with much pain and fever, and which, in old men especially, are a source of danger to life. Mr. Ruston Parker has treated sixteen such cases with the best result; not only is much relief given, but the case is quickly cured, and in some instances life has been saved.

THE GENERAL CARE OF THE SKIN CONSIDERED FROM THE POINT OF VIEW OF PROPHYLAXIS.

Jamieson writes in the *Edinburgh Medical Journal* for December, 1900, upon this important subject. He reminds us that the association of soap with ablution has come

to be a fixed idea in the British mind. "What! not use soap in my bath; why, I should never feel clean," is the common answer to the suggestion that it had better be discontinued. There is reason on its side, yet when we consider that much of the soap employed for toilet purposes contains more or less free alkali, often more than less, and thereby emulsifies the protective oleaginous ingredient of the epidermis, and so in a manner does away with it, soap as usually met with is not an unmixed advantage. The introduction by Unna of neutral soaps, to which an excess of unsaponified fat has been added — superfatted soaps — is an immense stride in the right direction. There are now many superfatted soaps in the market, and among them some really reliable ones, but it has to be borne in mind that it is to be a thoroughly good soap. It is quite possible to add lanolin or some other difficultly saponifiable fat to a soap which was originallly a very inferior soap, and then palm it off as a superfatted soap. Hence it is necessary to see that the soap is manufactured by a trustworthy firm, and it is well also to learn that it contains no cocoanut oil, as, if it does, it is not a proper skin soap. Neutral soaps, made from pure fats, and superfatted to the extent of from three to five per cent, should unquestionably be used in preference to any others. Medicated soaps are medicinal; they are not suited for ordinary use, but have their place, and a very restricted place it is, in the cure or amelioration of certain diseased conditions. The substitution of bags containing bran or oatmeal for soap is advisable, as by them the detersive effect is obtained while the defensive fat is left undisturbed.

Another important element in the care of the skin is the kind of water to be employed. Distilled, rain, or river water constitute perfection, but these are in many cases unattainable. We are not all in the position of Glasgow, with a practically pure water supply. Hard water, from its containing lime, acts deleteriously on the skin, and while there are chemical methods of softening such water, these are not available to the multitude. Some of the lime is deposited from water which has been boiled for a time and allowed to cool. The artificial additions to water, for the purpose of softening it, are apt to be harmful. Thus borax, soda, or ammonia render it alkaline and endow it with disadvantages similar to alkaline soaps. The sensation of softness imparted by these is deceptive. It arises from their combining with and saponifying the fat of the skin, hence they leave it harsh and dry. Bran, oatmeal, or starch lessen the injurious effect of the lime salts and are in themselves innocuous, hence such can frequently be mixed with the water with benefit. Glycerin diluted with water and the glycerite of starch are recommended as applications after the bath, to obviate the ill effects of hard water. These act through their hygroscopic power, and keep the surface moist, but at the same time they swell up the epidermic cells, rendering them unduly tender. It is a method which may prevent chaps forming in cold, drying winds. Of still more consequence is at once to seal up any chance crack or slight lesion of continuity, by placing over it a film of salicylic wool, and then painting this down with flexible collodion. In so doing we carry out the principle of the famous medical maxim, "*Obsta principiis*," which was, as some may remember, the motto of that much-loved man and excellent physician, the late Sir Douglas Maclagan, who among many other subjects took a deep interest in skin diseases.

Some portions of the body normally bear hairs, and some are wholly destitute of them. Exposure to the weather during adolescence and early manhood increases the hirsute growth, while constant covering checks its formation or leads to its disappearance. We see the effect of the former in the hairy legs of the Highlander accustomed to wear the kilt; of the latter in the bald crown of the hat-wearing professional or city man. Though there is desquamation from the scalp surface, as there is from the rest of the body, it is slight and trivial should the scalp be thoroughly healthy. To preserve it with the natural polish is what we should aim at. This can only be done by judicious attention. It is singular that there is a prejudice among many people against washing the hair. This may be accounted for perhaps in two ways: one, that in the female sex at least it is certainly rather a troublesome procedure to wash, and still further to dry, a copious and lengthy crop; and again, when washed with ordinary toilet soap, or with solution of borax as some do, the hair is left harsh and dry, and tends to fall more plentifully in consequence. But unwashed, effete epidermic particles in most cases accumulate around the roots of the hairs, and encourage if they do not directly cause diseased conditions. These cannot be removed by brushing, which, if at

all vigorously carried out, like the small-tooth comb—an abomination now all but banished—rakes the scalp and eventually renders the plight worse than before. If a well made fluid superfatted soap, in which the alkali is potash and not soda, be sprinkled over the head, then sufficient warm soft water be added from time to time, first to produce a lather, subsequently to wash out this lather, and with it the incorporated dust, the hair when dried will be found to be left soft and flexible, while the scalp has no sensation of tenseness. Or, in place of the soap, we may have recourse to an infusion of quillaia bark in warm water. This contains saponin, which emulsionizes the fatty matter, and floats off the dirt. Another safe and excellent shampoo is yolk of egg beaten up; this in like manner combines with the fat and renders it removable.

It may be gathered from what has been said that the proper use of a hair-brush is to polish and dress the hair, not to remove scurf. Therefore, a brush with long and fairly wide-set bristles should be used, not what is termed a hard and penetrating one. A comb with wide-set teeth should be used to arrange it, and in women it ought not to be dragged when put up. In many cases it is advisable to employ some artificial lubricant, and, as the outcome of many observations, fresh almond oil is that which has seemed to the writer to come nearest the natural unguent. Of course, it cannot quite replace it, for the hair in its growth attracts the fluid sebum from its gland, by capillary action, into its intimate fibrous structure, while we apply the oil from without. Almond oil is improved for this purpose by the addition of a little oil of eucalyptus globulus and resorcin. The former tends to keep it from rancidity, while the latter aids in maintaining the smoothness and polish of the scalp. This oil is applicable to the beard and mustache as well, and restrains the propensity to become gray. The best way to use it is to smear a little on the teeth of a dressing-comb, and thus convey it to the hair in passing it through.

INFLUENZA.

The *Medical Record* of December 8, 1900, has in its pages the paper of A. JACOBI on the treatment of this disease.

There is no specific for influenza, in his opinion. A purgative dose of calomel should be given, as the bowel is the principal point of attack in very young infants. The patient should be kept in bed in a room having a temperature of 70° F. or a little higher. The diet at first should be light. Alcohol and other stimulants are required only in selected cases, and in this respect influenza differs from certain other infectious diseases, notably typhoid fever and diphtheria. If the temperature is high, cold water is not indicated, either as a bath or as a pack. The irritative cough is apt to be aggravated by cold water. When there is much muscular pain and restlessness, a warm bath is often beneficial. A hot bath, except a very short one in the event of threatened collapse, should be avoided. Influenza pneumonias do better with warm than with cold packs. In the German collective investigation reports some observers praise quinine highly, while others express great disappointment with its action. When the vomiting is severe, rectal alimentation is indicated. Peptones and liquid albumins are readily absorbed into the colon, which even in the smallest infant is made accessible by raising the hips, but not raising the irrigator more than a foot above the anus. Dextrinized starch adds to the nutrient value of the enema. The best relief from medicines is secured by the use of morphine. A tablet containing one-sixtieth grain of morphine should be placed in the mouth of a child from two to four years old, there to be absorbed, or one-half to two drops of Magendie's solution might be given in the same manner.

The treatment of the symptom fever offers no hope of shortening the disease, but it contributes to the patient's comfort, and does not interfere with recovery. To be satisfied with depressing temperature is a great mistake, but to allow any influenza or any other disease to run its course, with no attempt to combat the obviously injurious effects of fever on the system, is equally reprehensible. Continuous fever, even though moderate, should not be allowed to run indefinitely without any attempt to check it. Nervines and analgesics are valuable aids to bathing, or as substitutes for baths, and they usually increase the comfort, and favor metabolism. Jacobi formerly asserted that acetanilid should be preferred among the poor, because of its low price, and antipyrin when solubility is important; but phenacetine is preferable to either when it can be given by the mouth, because of its superior action on the brain and on the skin. Antipyrin, when employed during normal conditions,

increases the pulse and blood-pressure; hence it is contraindicated in hemoptysis. It is not a nervine, as it acts chiefly upon the blood-vessels. To get the antipyretic effect the dose should be repeated in two hours. In general, its action is favorable. Phenacetine resembles acetanilid, but is milder; the dose should be one-fourth to one-half grain for infants and young children. Salipyrin should be given in twice the dose of antipyrin; it is usually better borne than antipyrin by neurotic persons.

In using these drugs it should always be borne in mind that influenza shows a strong tendency to prostration and heart debility, and hence when there is any indication of such an occurrence these remedies should always be guarded by the coincident administration of caffeine benzoate or salicylate. This is preferable to the use of alcoholic stimulants. When caffeine unpleasantly excites the brain it should be replaced by camphor in doses of one and a half to six grains. Camphor is soluble in four parts of sweet almond oil. A most useful though little used cardiac stimulant is Siberian musk. The ten-per-cent tincture should be given in doses of five to ten minims every half-hour for eight or ten doses. This remedy has many times tided Jacobi's cases over desperate crises.

INFANT FEEDING.

In the *Medical Record* of December 8, 1900, FISCHER has an article on this ever timely theme.

The most important point to be considered in the proper management of bottle feeding is to have pure cow's milk. Such milk can be secured only from a reliable dairy in which we are positive that all modern sanitary laws are so applied that the hygienic condition of the cow's stable is perfect. The principle of sterilization should be applied to everything in the stable—to the cow, to the milker's hands, and to all utensils used in milking and transportation, exactly as was outlined by Professor Baginsky in his paper on "Milk Supply," which Dr. Fischer read at the last meeting of the Section on Diseases of Children at Atlantic City in June, 1900. The principle of asepsis, so important in surgery, and which is really nothing more than absolute cleanliness, should be rigidly enforced.

Imitate nature in feeding. Nature has ordained for woman to feed her infant with raw milk, for it must be admitted that the breast milk of a woman is raw; it is neither boiled, nor sterilized, nor Pasteurized. Thus we should simply imitate nature in feeding the milk of the cow in the same manner as the infant at the breast receives it from its mother or wet-nurse.

There is a decided objection to raw-milk feeding owing to the contamination of milk with various pathogenic bacteria. Such risk, however, is reduced to a minimum when all the principles of modern hygienic measures are rigidly enforced. It is a well known fact that the prolonged use of sterilized or boiled milk will produce scurvy, and when scurvy exists, both sterilized and boiled milk must be discontinued to give place to fresh raw milk. Does it not seem more plausible in the face of such clinical experience to commence feeding at once with raw milk rather than risk the development of scurvy and be compelled to discontinue all other forms of feeding excepting raw foods? There is a certain deadness, or, to put it differently, absence of freshness, in milk that has been boiled or sterilized. It seems to be the lack of this same element of freshness which in the absence of fresh meat and green vegetables will produce scurvy in the adult. Speaking of the development of scurvy in children fed on sterilized or boiled milk, Rundlett says that changes do not take place in the albumin, fat, or sugar; but in the albuminate of iron, phosphorus, and possibly in the fluorin, vital changes take place. These albuminoids are certainly in milk, derived as it is from tissues that contain them, and are present in a vitalized form as proteids.

On boiling the change that takes place is due simply to the coagulation of the globulin or proteid molecule, which splits away from the inorganic molecule, and thus renders it as to the iron and fluorin unabsorbable, and as to the phosphatic molecule unassimilable. This is the change that is so vital, and it is this only which takes place when milk is boiled. It is evident that children require phosphatic and ferric proteids in a living form, which are contained only in raw milk.

Cheadle says that phosphate of lime is necessary to every tissue. No cell growth can go on without earthy phosphates; even the lowest form of life, such as fungi and bacteria, cannot grow if deprived of them. These salts of lime and magnesia are especially called for in the development of the bony structures.

Each child is a law unto itself, and its individual wants must be studied. One child

will gain in weight on the same mixture on which another will lose in weight, thus proving the difference in the assimilation of the same food in various infants. Having chosen a given food for one infant, we must note the following factors, to be satisfied that it is thriving: First, the infant must appear satisfied after taking its bottle; secondly, there should be no vomiting; thirdly, there should be no colic; fourthly, the bowels must move unaided at least once or twice in twenty-four hours, depending upon the age of the infant —the stool should be yellowish-white and of a medium soft consistency; fifthly, the infant should sleep from four to eight hours at one time during the night; sixthly, the weight must be taken regularly once a week, and if an infant thrives it should gain at least six to eight ounces every week; seventhly, when a child's weight shows no increase the reason should be studied, and by all means the food changed, for the infant requires more substantial nourishment. The following table will give an approximate idea of the quantity of food suitable for the age of the infant:

1–2 mos.,		2 ozs.:	1/4	milk,	3/4	water;	feed	every	2	hrs.
2–4	"	3	"	2/4	"	2/4	"	"	2	"
4–6	"	4–6	"	3/4	"	1/4	"	"	3	"
6–8	"	6–8	"	4/4	"	no	"	"	3 or 4	"

The sentiments expressed at the last meeting of the Academy of Medicine by Professor Jacobi, regarding the use of modified laboratory milk, coincide with Dr. Fischer's views. His experience has been that children fed on laboratory milk have been backward in their development, after its use for a long time. When first used, children suffered with severe constipation. Later, a distinct atony of the stomach and intestines was seen; poor appetites, requiring nux vomica, were seen still later, accompanied by delayed dentition and rickets. Children using the milk always looked pale and anemic; their flesh was flabby. Such cases were among the wealthy, in which the best possible hygienic conditions prevailed. He has never had an opportunity to study its effect on infants reared in tenement houses, with the poorest hygienic surroundings. The percentage method of feeding has always appeared plausible to him, but the theory cannot be put into practice. We know, as Jacobi so well says, that mother's milk changes at almost each nursing, and we know by chemical analysis that mother's milk is different in composition several times during the day. It will be necessary, then, if we do intend to imitate nature, to change the formula of an infant several times a day.

It is a fact well known to chemists that once an emulsion of milk is broken up by centrifuging or other mechanical process, as in separating the top milk from the skim milk, we cannot have again as homogeneous an emulsion as prior to this breaking up; and, moreover, that we increase our trouble when we in addition seek to improve the quality of the milk by subjecting it to the process of sterilization.

When milk disagrees and the infant's stomach will not tolerate it, and vomiting is provoked, or when gastrointestinal trouble arises, then milk must be stopped. At such times Fischer has seen good results in many children follow the use of almond milk. This is made by scalding or blanching the almonds, then beating them up, using an ounce of water for each ounce of blanched almonds, and rubbing up this mixture, then expressing it through cheese-cloth. This should yield an ounce of almond milk for each ounce of almonds used. It is well known that quite a large quantity of vegetable proteids are contained therein, and it is therefore a nourishing substitute. This almond milk can be made at home, and is quite serviceable in the treatment of summer complaint.

Dextrinization is successful in children having subnormal gastric digestion. It should be used during illness only, and it is not advisable to feed healthy children with dextrinized foods. Nature supplies its own dextrinizing agents, which must be used, or the glands secreting them will become atrophied.

Frequently the infant's stomach requires assistance in the assimilation of food, particularly cow's milk. The examination of the gastric contents in weakened gastric conditions has always shown a deficiency in hydrochloric acid. Hence it seems more plausible to give the infant several drops of dilute hydrochloric acid after feeding.

In conclusion Fischer states that two drugs must always be considered in the management of infant feeding, especially the difficult cases: (1) nux vomica; (2) malt.

PRACTICAL HOME METHODS OF BATHING IN TYPHOID FEVER.

Dr. S. Baruch recently discussed this phase of this subject. He said that the first impression of cold upon the skin was the so-called shock; it was really a physiological

irritant. The impression lasted a longer or shorter time, depending upon the method of procedure and its duration. The friction stimulated the contracted arterioles to dilate again, and performed the important normal function of propelling the blood, thus keeping up a proper peripheral circulation. The latter was usually so crippled in typhoid fever that the heart was compelled to beat faster and more forcibly. By the proper use of cold water the pulse diminished in frequency and gained in force. The skin assumed a rosy hue because its arterioles had been dilated in a tonic fashion. The countenance lost its apathy, the respirations were deepened, and the kidneys were aroused to renewed activity. Friction should always accompany the cold-water treatment—a fact which even at this late day needed reiteration and emphasis. As an illustration of how the cold-water treatment should not be applied in typhoid fever the speaker mentioned the abdominal ice coil, still so popular with many physicians. This was a direct violation of the fundamental principle of all hydrotherapy, that cold applications must be accompanied by frictions. In home practice the ablution was the simplest procedure. The patient was stripped, a blanket was placed underneath him, and first the back and then the anterior surface of the body treated to the ablution. It should be given with considerable friction, the temperature of the water being reduced from time to time until the temperature reached 60° F. The abdominal compress was another useful method of applying cold water. This consisted of three folds of toweling wrung out of water at a temperature of 70° and applied snugly, being covered with thin flannel. It should be renewed hourly. When the temperature persisted in remaining at 103° or above, the towel bath was appropriate. A towel was dipped into water at 85° F. and laid dripping and smooth over the entire back. Water at 70° was dipped up with a cup and poured on the upper left part of the back, and then this part was rubbed with the hand. This was done three times, and then the other parts of the back were successively treated in the same way. The water on the sheet was mopped up with a sponge, and then the anterior parts were similarly treated, care being taken not to use pressure over the iliac region. The temperature might be reduced five degrees each time until the temperature of the water for the towel reached 60° and that in the cup reached 50°. The "sheet bath" was still more potent, and was very useful when objection was made to the full bath, or the latter was impracticable. An old linen sheet or tablecloth should be dipped in water at 90°, and wrung out very lightly. The patient having been wrapped in this, water at a temperature of about ten degrees lower should be poured successively upon different parts of the body, and each part rubbed with the hands until it no longer warmed up. The typhoid fever patient should be given internally from four to six ounces of water at 40° every two hours, and this should be alternated with the same quantity of milk.—*Medical Record*, Dec. 8, 1900.

CHLORALAMID.

CLEVENGER tells us in the *Medical News* of December 8, 1900, that chloralum-formamidatum, the chemical name, which pharmacy requirements shorten into chloralamid, is constructed by the interaction of chloral (not chloral hydrate) and formamide. It dates from the experiments of Von Mering, the Strasburg clinician, in 1889, and has grown into universal esteem. The pharmacopœias of all other nations will assuredly follow the German in recognizing its value. The formamide is a stimulant which counteracts the blood-pressure fall of chloral, and, according to Reichmann's sphygmographic tests, chloralamid influences blood-pressure but little. Nor is there unfavorable action upon the temperature, respiration, circulation, or digestion.

It is decomposed by alkalies and heat and in water at 140° F. (60° C.), hence it should never be given in hot water, as has been improperly done at times. Twenty parts of water at ordinary temperature is said to dissolve the crystals, but Dr. Clevenger has found that thirty to forty parts of water saves much time in making the solution; weak acids facilitate its dissolving, and one and a half parts of alcohol rapidly unites with it; therefore, about three-quarters of brandy or whiskey, if standard, will also do so. Taken in powder the effect is delayed, though some practitioners persist in this form of dosing. With stomach acidity there would be more rapid assimilation. Claret is used occasionally, but in all instances where vinous or watery vehicles are solvents and time is to be saved, a concentrated alcoholic or elixir dose should be poured into the vehicle.

Its slightly bitter taste is scarcely worth consideration, but to disguise it an approved formula is:

℞ Chloralamid., ʒ ij;
Spirit. vini gallici, f ʒ j;
Syrup. rubi idæi, f ʒ j.
M. Sig.: Half-teaspoonful at a dose.

Lettow's prescription for an enema is:

℞ Chloralamid., gr. xlv;
Acid. hydrochlor., ♏ ij;
Alcohol, ♏ xv;
Aquæ destillat., f ʒ iij.

A solution made with twelve grains in two and a half drachms of water may be used hypodermically when such disorders as rectal carcinoma deprive a patient of sleep.

The usual dose of chloralamid is 15 to 60 grains one-half hour before bedtime. It takes effect usually in one hour. One dose has sufficed to secure sleep on a subsequent night as well as upon the night when used. The German Pharmacopœia mentions 60 grains as the largest single dose, and 120 grains as the largest daily dose.

There is no liability to addiction, no ill consequences, no cumulative effect; and as it does not influence the viscera and is not an irritant to any mucous membrane, it should more rapidly supersede chloral hydrate, as it is gradually and surely doing.

The relative strength is assumed to be 45 grains of chloralamid, equaling 30 grains of chloral hydrate, but in practice the doses are about the same, with the advantage that while a minimum dose of chloral hydrate has killed, no amount of chloralamid has been attended with fatal result so far as reported. The blandness and safety of chloralamid without after-effects should certainly recommend it against the danger and harshness of chloral hydrate, which destroys digestion by setting up gastritis, and its constant administration has cut off chances of recovery from insanity. He believes that insane asylums should in the name of humanity use chloralamid in preference to chloral hydrate. In organic heart disease chloralamid is safer, and there is less danger and dread in giving it where there is any cardiac complication. Cervello claims that chloral injuriously affects the heart, and that it created a difference from normal blood-pressure of from 50 to 80 millimeters, while chloralamid differed within the limits occurring during ordinary sleep 17 millimeters, so chloralamid, he infers, influences the heart but slightly.

Phenacetine, phenocoll, lactophenin, and antipyrin are well known minor pain alleviators which incidentally and indirectly may cause sleep, but against each of these have been charges of their causing heart interference and cyanosis. Acetanilid of this series was regarded as the worst in this respect, and antifebrin was presumed to be only a proprietary form of the former. Certainly, pseudoscientific "headache powders," extensively advertised, have here and there occasioned death; this has been laid to commercial impurities in the acetanilid. Reputable physicians are afraid to make too common use of such things, but the nostrum advertiser has neither fears nor scruples, an instance of ignorance and cupidity rushing in where knowledge fears to tread.

Conium maculatum was a favorite motor paralyzant in maniacal states, but is too dangerous for extensive use. Ergot is probably not used enough as an arteriole constringent where congestions produce pain or sleeplessness. Bromides are being dispensed more and more, even to a reckless extent, while their protracted use causes debility and poverty of blood. Cocaine is being abused in quack preparations, such as wines, and the latter has increased the number of epileptic fits. Hypnone, somnal, and urethane have been practically discarded through unfavorable reports. The feebleness and unreliability of lactucarium shelve it as a curiosity more than a medicine.

THE USE AND PLACE OF CAUSTICS IN THE TREATMENT OF MALIGNANT DISEASES.

In the *Columbus Medical Journal* for November, 1900, M'GAVRAN tells us his views in regard to these rather neglected measures. In the opinion of Dr. M'Gavran caustics should not be used in the treatment of cancers of the breast. He would also exclude the use of caustics in the treatment of uterine cancer. Some cases of disease confined to the vaginal portion have perhaps been cured by the actual cautery, by chromic acid, and the like, but the only hope of permanent relief is by an exceedingly early diagnosis and removal of the entire uterus. No time should be wasted with caustics. Caustics have no place or use in the treatment of cancer of the tongue, tonsils, eyelids, orbit, penis, scrotum, and rectum. He has never used caustics in the treatment of cancer of the lip, but has a number of times removed by excision carcinomata of the lip, without

having any local or regional recurrence. He would recommend to every physician as soon as he makes a diagnosis of cancer of the lip to make an early excision, and to do it himself, and not be a distributing agent here, there, and everywhere. It is an easy operation, devoid of danger. In his opinion and in his experience all objections to caustic treatment disappear when we come to consider cutaneous cancer. Epithelial cancer of the nose, cheek, forehead, and neck can be cured by the timely use of caustic agents judiciously and properly applied, and in the majority of cases of cutaneous cancer far superior to the knife in securing their permanent removal with the least amount of deformity.

The writer submits five typical cases of epithelioma of the face which have been successfully treated with caustics:

1. Patient with epithelioma located upon the center of the forehead in the form of a smooth, well defined, slightly nodulated tumor, about two inches in diameter, rising abruptly from the surrounding skin to the height of half an inch, with a flattened surface, firm about the periphery, but somewhat fluctuated in the center, and of a dusky, purplish hue.

2. Another, with epithelioma of the nose, presenting a reddish, nodulated tumor the size of the finger-nail and slightly raised above the surface of the skin, from which it rose abruptly with a smooth, elevated, pearly border. It was covered with a thin crust or scale. The history of the affection showed it to be of several months' duration, having first been noticed as a small pea-sized nodule in the skin without sensation of any kind, but which grew gradually until it reached its present size. Recently the patient had experienced a slight pricking or itching feeling in the tumor, and it had grown constantly, although slowly, from its first appearance.

3. This case was very similar in character and history to the second, the disease having extended to about the same size and being situated on the cheek just at the side of the nose.

4. The point attacked was the nose, the entire cartilaginous portion of which had been destroyed. The borders of the septum and the remains of the alæ nasi were infiltrated, enlarged, and in one or two places suppurating slightly. Disease appeared to be extended into the nares.

5. Epithelial cancer situated in the temporal region, near the outer canthus of the right eye. The cancerous growth was confined to the skin, without involving the mucous membrane at the outer canthus of the eye.

These and other similar cases represent the class of malignant diseases wherein the writer recommends the use of caustics.

The choice of a proper escharotic is of great importance. Mild cauterization should never be employed. The theory of Unna, Dühring, and their disciples that mild applications such as resorcin, pyrogallol, and aristol may bring about a modification of cell structure, which will render the disease benign in its tendency, is a plausible one, which has often led to a condition as hopeless as it is inexcusable. Walshe was correct, when as long ago as 1846 he laid down this principle: Caustic agents should be applied in such manner as to produce the requisite effects by single application, otherwise the irritation gives not necessarily, but commonly, new activity to the disease.

To be brief, M'Gavran states that all weak caustics — for instance, nitrate of silver and mineral acids — should never be employed. Caustic potash, chloride of zinc, arsenous acid, are the three agents that have given the best results. The caustic with which he has had the most experience, and which has given him the best results, is the chloride of zinc ointment, or what is known as Bougard's caustic compound, and it is as follows:

Wheat flour, 60 grammes;
Starch, 60 grammes;
Arsenic, 1 gramme;
Cinnabar, 5 grammes;
Sal ammonia, 5 grammes;
Corrosive sublimate, 0.50 centigramme;
Solution of chloride of zinc at 52° F., 245 grammes.

The first six substances are separately ground and reduced to a fine powder. They are then mixed in a mortar of glass or china, and the solution of chloride of zinc is slowly poured in, while the contents are rapidly moved with the pestle, so that no lumps shall be formed.

A thick layer is then spread on cotton and left in position from ten to twenty-four hours. If the application has been successful, all of the macroscopical cancer mass should appear to be necrosed completely and the tissue beyond inflamed. Warm poultices are applied until the slough separates, usually in three days. Few cases require a second application. The ulcer may be dressed with aristol ointment. All exuberant granulations are to be kept in check by the usual methods. It is important to so stimulate the ulcer as

not to permit scabs to form. The writer has used caustic potash a few times to soften the tumor before employing Bougard's caustic. He has never used Marsden's paste.

For the successful use of caustics the physician must be able to recognize the form of tumor, he must appreciate the manner of extension of growth, and the necessity for prompt and complete removal and destruction of all the pathological epithelium. He must treat his cases energetically. The desire not to give the patient too much pain is usually the cause of their imperfect treatment. During the application of the caustic M'Gavran usually gives a hypodermic of morphine every five or six hours. Some cases do not require it—in fact, he has had patients say the treatment was painless.

A PLEA FOR THE EARLIER RECOGNITION OF SQUINT IN CHILDREN BY THE FAMILY PHYSICIAN, AND THE EARLIER APPLICATION OF THE METHODS OF TREATMENT.

VEASEY states in the *Medical News* of December 1, 1900, that the family physician, as a rule, has his attention directed to this condition shortly after its appearance. If he is indifferent, and says (as we have known to be done frequently), "Oh, the child will outgrow it, let it alone," in most cases the squint will become permanent and a portion of the visual acuity of one eye may be lost. On the contrary, if the proper treatment be instituted much can be done toward relieving the deformity and at the same time preserving the useful vision of both eyes, as well as in avoiding the many neurotic ailments to which eye-strain frequently gives rise.

It is not within the province of this paper to review the different causes of squint. It might be well to add, however, that it is not caused by looking at a lock of hair falling to one side of the face, by fright, by imitation of another cross-eyed person, or, as suggested to him by the mother of one of his patients, by "eating a dish of cold beans purloined from the kitchen pantry."

The large number of cases, as previously intimated, depend upon some disturbance between the relation of accommodation and convergence, a condition generally brought about by some error of refraction. It would seem, therefore, that the proper procedure in all cases of squint, excepting, perhaps, those of paralytic origin, would be to determine whether there is present any error of refraction. If one is familiar with the use of the ophthalmoscope this can be readily done; if not, one drop of a solution of atropine, four grains to the ounce, should be instilled into each eye night and morning, and the child's eyes protected from strong light; in fact, dark glasses should be worn out-of-doors if the child is old enough to keep them on. Should the squint disappear, or become very much better, it will prove that an error of refraction is present in the case, the strain upon the accommodation having been relieved by the action of the atropine upon the ciliary muscle, and the patient should be carefully glassed. Should the patient be too young to wear glasses, the atropine instillations, in half strength, may be kept up at varying intervals in the meantime in order that the excessive accommodative efforts may be relieved. The youngest patient for whom glasses were prescribed by the writer was three years of age, a case of convergent squint with Jacksonian epilepsy, in which the squint disappeared and the number of convulsions was markedly reduced. Frequently little ones from three and one-half to five years of age have worn glasses, and complete correction of their squint has resulted in a comparatively short period of time.

If the wearing of glasses for several weeks fails to correct the defect, a system of muscle gymnastics known as "orthoptic exercises" should be employed. The apparatus required is an ordinary box stereoscope with a series of double pictures. The patient is first taught to recognize both pictures on the cards, or to see double, thus showing that both eyes are used at the same time, and after this has been accomplished to fuse the two pictures into one. This method is of very little use in cases of high degrees of squint in which the glasses produce but little change; but in cases of low degree, or in cases of residual squint after operation, it is decidedly of the greatest value.

Should the wearing of the proper glasses and the faithful systematic employment of orthoptic exercises fail to cure the squint, recourse must be had to operative measures. This usually consists of a tenotomy of one muscle or an advancement of its opponent, or both, depending upon the amount of deviation to be dealt with, the variety of the squint, the strength of the opposing muscle, and the condition of the visual acuity of each

eye. If the defect is convergent the eyes should not be entirely straightened at the operation, but a small amount of residual squint should be permitted to remain, as there is always a slight after-tendency to divergence.

For the same reason in operating for divergent squint it is better to produce a very slight convergence.

As to the age of the patient, it is best to wait until the child is about six years old, though there are a few cases in which earlier operations seem advisable.

These few brief notes give but a meager outline as to the methods to be followed in the treatment of concomitant convergent squint, and are offered principally to direct the attention of the family physician to the condition upon its first appearance, so that it will not be put aside as something to be outgrown, but will receive the prompt attention it deserves.

STOMACH CONDITIONS IN EARLY TUBERCULOSIS.

REED states in the *Philadelphia Medical Journal* of December 1, 1900, in a paper on this subject, that in real tuberculosis the secretion of HCl in the stomach is very frequently excessive, the peptic glands being in a condition of irritability which causes stimulant remedies of the creosote class to disagree and act injuriously.

Oils tend to depress the secretory function of the stomach, and in consequence cod-liver oil is likely to help the cases which the creosote class of drugs hurt, but, on the other hand, hurts the cases in which the gastric secretion is inactive, the very ones in which creosote and the like often do good.

Therefore it ought to be the rule to ascertain the condition of the secretory function of the stomach before pushing either class of remedies.

When analysis of the gastric contents cannot be made, it is safer to combine creosote with cod-liver oil, so as to let one neutralize the other in their influence upon the stomach.

The motor function is very generally depressed in tuberculosis, and must be restored before a cure can be brought about. Drugs avail little in this direction, but diet, exercise, especially in the open air, faradism, and abdominal massage, are all valuable means of effecting the result.

TREATMENT OF SIMPLE CHRONIC CATARRH OF THE NOSE.

BERNDT writes in the *Columbus Medical Journal* for November, 1900, of this disease. He thinks that the first requisite to success is to keep the nasal cavities clean. This is best obtained by the use of the postnasal douche. He never uses nasal sprays, for the simple reason that the amount of medicament thus applied is so small that it is useless, and then besides, the amount of pressure required to force the spray throughout the nasal chambers is so great that the medicine could with ease be forced into the Eustachian tubes, and so cause considerable trouble.

By means of the postnasal douche a larger and sufficient quantity of medicament is applied, and the inspissated mucus and crusts thereby softened and removed; and there is absolutely no danger of any of the fluid entering the Eustachian tubes, from the fact that the direction of the force is away from and not toward their openings into the pharynx.

The solution that Berndt uses is made by dissolving one of Seiler's alkaline antiseptic tablets in an ordinary-sized glass of warm water. The amount of solution is used three times daily. This part of the treatment is carried on at home by the patient himself. Berndt usually has him call at his office every third day and make local applications himself. After the membranes have been thoroughly cleansed, oleaginous applications are indicated to protect the surface, stimulate the absorbents, contract the blood-vessels, disinfect and render the mucosa less sensitive.

An effective treatment consists in the application of nitrate of silver water solutions, varying in strength from one- to ten-per-cent, followed by menthol in olive oil, of the strength of from two- to twenty-per-cent. These remedies he applies directly to the tissues, with the aid of a head mirror and speculum, by means of the cotton swab. The whole surface of the nasal chambers is literally painted with the above named solutions. This treatment is best given two or three times a week by the physician, while the patient pursues a home treatment with the postnasal syringe and solution above mentioned. By this treatment alone the writer has with almost uniform success treated sixty-seven cases in the past year. The few unsuccessful cases were those in which the catarrh was passing over into that variety known as atrophic catarrh, which, when it becomes offensive, is called ozena.

This latter variety will resist almost every known treatment.

Berndt never uses cocaine as a therapeutic measure, because it is not of such a nature as to effect permanent results, and because of its imminent danger of converting one's patient into a cocaine fiend; he only uses cocaine as a surgical anesthetic.

Bougies and dilators of medicated gelatin, hard and soft rubber, and metal, are sometimes useful in reducing the engorgement of the turbinated bodies, and overcoming contact and pressure of the bodies on the septum. The bougies adapted in form and size to the individual cases are inserted between the turbinates and septum for a few minutes at a time at first, beginning with the smaller, and used on the same principle as sounds and dilators in other departments of surgery. When the engorgement of the vessels of the turbinated bodies produces great swelling of those structures, and consequent nasal obstruction that proves unyielding to the methods already mentioned, it has been his plan to use the cold wire snare as in hypertrophic catarrh.

Of course, the question of proper clothing must always be considered in the treatment of all forms of catarrh.

THERAPEUTIC STUDIES OF HEROIN HYDROCHLORIDE.

The *Medical News* of December 1, 1900, has in it an article by HYAMS on this drug. He reminds us that heroin hydrochloride is a neutral salt of heroin, a new morphine derivative, and is a white, odorless, crystalline powder of slightly bitter taste, freely soluble in water, acetic and dilute sulphuric acids. Its physiological action has been aptly and concisely described as that of a "respiratory stimulant and a sedative to the respiratory mucous membrane." Its action in relieving cough and dyspnea is prompt, and its ready solubility renders it peculiarly suited for hypodermic administration, especially where immediate results are required. It has little if any antipyretic properties; its action on the temperature is not marked, prominent, or constant. In the majority of Dr. Hyams's cases, he has noticed a slight reduction, but not sufficient to entitle it to practical consideration in this regard.

Respiration is profoundly influenced in all cases. There is a decided diminution in the frequency of the respiratory movements, with a prolongation of the inspiration and an increase of the force of expiration. The elimination of bronchial secretion is promoted, thus aiding in the relief of dyspnea. The pulse becomes slightly diminished in frequency, and likewise somewhat fuller. It is in no sense a hypnotic, except that it indirectly relieves the distressing symptoms which prevent sleep. In therapeutic doses there is no disturbance of the gastric functions. Except for slight nausea noticed in one case no ill effects were observed. Its action on the intestine seemed to be a slightly constipating one. To overcome this it may be advantageously combined with cascara sagrada.

Dr. Hyams has found the drug well borne in both the young and the old, especially so in the former. He considers this a point of special moment. As an anodyne in painful affections it ranks much below either morphine or codeine.

The after-effects which the writer has noticed have been a slight nausea in one case, dizziness in two cases, languidness in two cases, and a pharyngeal irritation, with constant desire to clear the throat. He adds that none of these sequelæ was of a serious nature, and they soon passed off without special treatment.

In cases marked by a diminution in the expectoration, the drug may with advantage be combined with either the iodide of potash, ipecac, terpin hydrate, or squill, in such ways as may suggest themselves in each individual case. As mentioned, in cases attended with constipation, the addition of cascara sagrada is effective.

The average dose by mouth is from $\frac{1}{24}$ to $\frac{1}{8}$ grain, three times daily. It is preferably given after meals, especially when there is a diminution of gastric secretion, in which condition, if dissolved in an acid medium and taken after the ingestion of food, it fulfils all requirements. It may be given in powder, pill, tablet, or solution. It is freely soluble in acetic acid and dilute sulphuric acid, and although the former seems to be the solvent most frequently used, Hyams has seen no advantage that it possesses over the latter. After the prolonged use of the drug, as in tuberculosis, larger doses are required. For prompt effect it is employed by hypodermic injection, for which its ready solubility in water renders it especially suitable. Four to eight minims of a two-per-cent solution represents $\frac{1}{12}$ or $\frac{1}{6}$ grain, the smaller dose being the average amount necessary. The incompatibilities to its use internally are alkalies and apomorphine.

AN IMPROVED TECHNIQUE IN AMPUTATION OF LARGE RECTAL PROLAPSE.

RYERSON (*Medical News*, vol. lxxvii, No. 23) in a case of large rectal prolapse notes that the following method of carrying out the procedure of amputation of the prolapse proved to be comparatively easy of performance, and was followed by a most excellent result. The patient was a male, in whom the mass protruded about five inches, and it had been in existence for five years.

Analgesia was effected by means of spinal cocainization. The patient was placed in the combined lithotomy and Trendelenburg position. Being fully conscious he was able to bear down forcibly and extrude the prolapse fully, thus doing away with the necessity for traction upon the latter. A row of fenestrated or ring-headed forceps (common artery clamps will answer, but do not hold so well) was placed just in front of the junction of the mucous membrane with the skin of the anus in such a manner as to pinch up a circular fold of the mucous membrane of the outer cylinder for the entire circumference of the outer cylinder of the gut, this incision extending through the mucous membrane only. Its proximal edge was dissected back for half an inch. Two clamps were now placed, one upon either side, at the point of the prolapse, or the place where the outer cylinder of the gut returns to form the inner cylinder. With the mass thus steadied and the two cylinders identified, the index-finger of the left hand was passed up the inner cylinder, and with this as a guide the circular incision already made in the circumference of the outer cylinder was deepened to the extent of a half-inch so as to include the remainder of the thickness of the latter and the inner cylinder through its entire thickness to the finger inside the latter. A suture of catgut was now placed so as to include the entire thickness of the two cylinders where the half-inch opening was made, with the exception of the turned-back mucous membrane cuff at the anal mucocutaneous margin grasped at first by the fenestrated forceps. This step of the operation was repeated until the entire circumference of the cylinders was traversed, save that each subsequent suture was first applied and the incision extended afterward. Care was taken that each extension of the incision was carried no farther than the area previously secured by the suture.

Throughout this portion of the operation a stream of warm borosalicylic (Thiersch) solution was kept playing upon the parts. When the posterior portion of the circumference was reached the mesenteric attachment of the gut was encountered. This was treated precisely as the anterior portion, no difficulty being encountered in securing the vessels of the mesentery in the suture. As the last suture was applied the final cut was made in front of it, completing the amputation of the prolapse. The dissected-back mucous membrane at the mucocutaneous margin, which up to this time had been held in the grasp of the forceps first applied, was now replaced and sutured in position over the first row of sutures. Alcohol-boiled catgut was used as suture material throughout the entire operation. The patient suffered not the slightest pain during the operation, nor inconvenience either then or thereafter from the spinal cocainization, save slight nausea and mild headache. An opium suppository was placed high up in the bowel, and the parts replaced. A light tampon of zinc-oxide gauze was placed in position for forty-eight hours, after which it was removed and a castor-oil cathartic given, followed in three hours by a sweet-oil enema.

The advantages of this method consist: (1) In the use of the combined lithotomy and Trendelenburg position, in order to prevent the descent of the small intestines during the operation, and thus providing against injury to these during the suturing. (2) In turning back a cuff at the mucocutaneous margin for the purpose of preserving the normal conditions at the rectal outlet, and at the same time permitting the removal of all the relaxed and overstretched mucous and submucous structures at this point; this cuff also provides a covering for the sutured edges of the stump of the prolapse and diminishes opportunity for subsequent infection. (3) In the step-by-step application of first a suture and then an extension of the incision through both cylinders to correspond with the sutured area, in this manner avoiding exposure of the peritoneal cavity to infection.

DIAGNOSIS AND TREATMENT OF INTRACRANIAL TUMORS.

BRAMWELL (*Medical Press and Circular*, vol. cxxi, No. 18, 1900) calls attention to a very small group in which a tumor has been present for years without producing any symptoms at all. This is illustrated in the following case of abscess of the brain. The

patient was a strong, healthy man, who was suddenly seized with an epileptic fit, became paralyzed and aphasic, and died in ten days from an evidently advancing cerebral lesion. Tumor was one of the things thought of, abscess was another, cerebral thrombosis with softening was a third. Abscess was rejected because there was no apparent cause for abscess. Tumor was rejected because the patient had been absolutely well until the commencement of the symptoms; he had never previously had any head symptoms whatever, and had not suffered from syphilis. It was thought that the case was one of cerebral thrombosis with softening, and for that reason it was decided not to operate. On post-mortem examination a very large abscess, full of stinking pus, was found in the centrum ovale on the left side, and in addition there was a firm old tumor about the size of a walnut which must have been present for many years without producing any symptoms. It is an extremely rare condition, and such a tumor cannot, of course, be diagnosed.

In a second group of cases of intracranial tumor there are well marked symptoms of a general kind—headace, vomiting, giddiness, and double optic neuritis, sometimes generalized epileptic fits, but no localizing symptoms. In this group a very large number of cases are included—cases in which there are merely general symptoms without sufficient localizing symptoms.

A third group of cases, which is also very large, is one in which in addition to well marked general symptoms there are well marked localizing symptoms, such as localized paralysis or localized spasm or hematopsia, or other well defined localizing symptom, which enables it to be said that there is a tumor, but not, with exactitude, where that tumor is situated.

A fourth group, which is larger than the first but much smaller than the other two, is one in which there are no general symptoms, but only localizing symptoms. There is no headache, no vomiting, no giddiness, no optic neuritis, but some well marked localizing symptom such as Jacksonian epilepsy is present.

In a case observed by Bramwell there was practically no headache, there was no vomiting, and no optic neuritis. There were, however, well marked localizing symptoms which enabled the tumor to be located. By the method of exclusion, the conclusion was arrived at that the discharging lesion, which was situated in the upper part of the motor area for the left upper arm, was in all probability a tumor.

A very important point in certain cases, for purposes of prognosis and particularly of treatment, is the pathology of the tumor. The most common forms of intracranial tumors are gliomatous or glioma-sarcomatous tumors, syphilitic tumors, tuberculous tumors, and cancerous tumors. There are other rarer forms, such as fibromata, but their rarity makes them of far less practical importance. In this particular case syphilis could be excluded because the patient definitely stated that he had never had it, there were no obvious indications of former syphilis on the surface of the body, and the style of the symptoms was not such as to suggest syphilis. Further, in syphilitic cases the symptoms are usually relieved by antisyphilitic treatment—at all events for a time—and he had been treated by iodide of potassium for the five months of his illness before coming to hospital.

There was no suspicion of tubercle nor primary cancer outside the cranium.

Here again the pathological diagnosis had also to be made by the method of exclusion, the conclusion being that the tumor was a glioma—probably of small size—affecting the upper part of the motor area for the arm on the right side of the brain.

The prognosis in such a case, unless the tumor can be cut out, is of course extremely bad. After treatment for a week on full doses of iodide of potassium, together with bromide of potassium and chloral hydrate, with the object of relieving the spasms, Mr. Cotterrill performed an operation. A large flap of bone was reflected with the scalp adherent to it. A large portion of the motor area of the brain was thus exposed; the bone and dura were found to be quite natural. No alteration in the consistency of the brain could be detected, and there was nothing which could be definitely identified as a tumor. The exposed area of brain was stimulated with the faradic current, but no response (spasm) resulted. A fine trocar was then inserted into the brain tissue in various directions; nothing but clear cerebrospinal fluid was withdrawn; the trocar had evidently penetrated into the ventricles. It was therefore decided to do nothing more; the flap of bone was replaced after the dura had been carefully sewn together with silk stitches, and the scalp wound was sewn up with horsehair. In the course of a fortnight the patient

was absolutely well, so far as the effects of the operation were concerned. With regard to the effect of the operation on the fits, almost immediately after the operation he had a return of his spasms, and from this time he continued to have the fits just as before. He was again put upon iodide and bromide of potassium and chloral hydrate, but no improvement resulted. About a month or six weeks later he returned home, and a few days after that he had a general epileptic fit and died in it.

TREATMENT OF DUPUYTREN'S CONTRACTION, AND OTHER POINTS IN THE SURGERY OF THE HAND.

TUBBY (*Lancet*, No. 4037) adopts the following measures for Dupuytren's contraction:

The hand is made absolutely aseptic. As an anesthetic, chloroform is preferred to ether. An Esmarch bandage is placed around the upper arm to prevent obscuration of the field of operation. An incision is then made vertically over the most prominent band of fascia. Before removing the fascia, the digital vessels and nerves are defined as they emerge from the divisions and are traced back by cutting through the thickened fascia toward the wrist. The affected structures are then removed, and often the finger or fingers can be straightened. In cases where the fingers are involved, a small, fine tenotome is passed between the skin and the bands on the lateral aspects and the fibrous tissue divided. Torsion is used instead of ligatures to prevent spurting of arteries. The wound is sutured with horsehair. If there is a hiatus of skin at the roots of straightened fingers a small plastic operation is performed, and a little skin is slipped down to cover the spot. Sal alembroth dressings are used, and rigid asepsis must be continued until every scab has disappeared.

In the cases of club-hand which Tubby has seen, he has been content to divide the contracted tendons and to gradually improve the position of the hand by massage, passive movements, and a retentive malleable splint.

In cases of division of the tendon in the hand, complete union, even after most careful suture, depends on some facts, especially (1) the index of tension at which the muscle and tendon are set; (2) the limitation of retraction of the tendon by bands of fibrous tissue binding it in its grooves; and (3) the character of the structures at the spot where division of the tendon occurs. These three points should be remembered in forming a prognosis as to the results of tendon division.

PNEUMOCOCCIC ARTHRITIS.

CAVÉ (*Lancet*, No. 4037), after studying thirty-one cases of pneumococcic arthritis, one of which he treated himself, observes that the association of the arthritis with other localizations of the pneumococcic infection is the rule, that this associated lesion is commonly in a vital part, and more directly threatening to life than is the arthritis. Besides the occurrence of pneumonia in twenty-eight out of the thirty-one cases, there was often a wide-spread infection of the system by the virus with malignant endocarditis (6 cases), pleurisy and empyema (5), pericarditis (2), nephritis (3), meningitis (6), and peritonitis (1). In some of the cases there was a simultaneous inflammation of more than one serous membrane.

The morbid anatomy of the joint infected by pneumococci is essentially that of any other septic arthritis.

In mild cases, or those of short duration, the synovial membrane alone may be affected, with less of polish and injection of the fringes. In many, however, the cartilage is partly or completely eroded, and the surface of the bone is laid bare. In the older or more virulent cases the ligaments and cartilages, and in some the articular ends of the bones, are completely destroyed. Pus may perforate the capsule and penetrate several inches along the intermuscular planes or the sheaths of tendons.

Ten cases of the thirty-one studied gave direct evidence of the situation of the infection in a previously damaged joint, a fact of interest when it is compared with the experimental investigation of the pathogeny of the affection in animals.

The observations of numerous investigators are thus summarized: (1) The injection of a virulent culture of the pneumococcus directly into a joint of a susceptible animal is almost invariably followed by acute suppurative arthritis. (2) The subcutaneous injection of virulent cultures after the previous excitation of an aseptic inflammation in a joint may give varying results, either negative or positive. (3) The intravenous injection of virulent cultures with associated aseptic traumatism of a joint leads to arthritis

much more certainly than do injections by the subcutaneous method. Bezançon and Griffon have succeeded in producing an experimental pneumococcic arthritis by modifying the resistance of the animal experimented on in relation to the virulence of the pneumococcus. Leroux sees in this arthritis after partial immunization a correspondence with the clinical experience that arthritis usually supervenes after a pneumonia has run its course or toward the end of an attack, when a condition of greater or less immunity has been acquired.

The symptoms of pneumococcic arthritis vary from pain and slight swelling limited to a single joint to an intense inflammatory edema of the whole neighborhood of the articulation, or of a whole limb, with severe pain, heat, and redness, with abnormal mobility from destruction of the ligaments, and with grating of the bared surfaces of the bones. The fever is generally high (from 102° to 104°). The nature of the arthritis can be determined only by its association with pneumonia or other pneumococcic infection, and by bacteriological examination of the joint contents. In cases that recover progress is slow, and the function of the joint is generally permanently impaired.

In suppurative cases, the treatment may be aseptic incision of the joint, with flushing, drainage, and fixation, as in any other acute arthritis. Cases where the effusion is serous or serofibrinous may be treated by fixation on a splint with moderate compression by a bandage over cotton-wool. It is a question whether an arthrotomy for the removal of the morbid products would not be followed by a speedier cure and more favorable results as regards the ultimate restoration of function to the joint, and the removal at the same time of a possible source of generalized infection. In any case convalescence may be tedious and prolonged, with much stiffness and adhesion in and about the articulation. This condition must be treated by massage, by douches and other hydrotherapeutic measures, or by hot-air baths, and when it seems necessary by forced movements of the joints. All cases should be followed by suitable exercises for the restoration of wasted muscles and the preservation of the mobility that has been gained.

FREE BODIES IN JOINTS.

Schmieden (*Archiv für Klinische Chirurgie*, Bd. 62, Heft 3) had under observation forty-nine cases of loose bodies in joints, forty-four of which were subjected to operation. In all the healing was by first intention. In nearly all the joints treated there were secondary changes incident to the presence of loose bodies. Often these changes were most marked. The method of operating is as follows:

After thorough disinfection, the loose body is fixed by the finger of an assistant in that part of the joint nearest to the skin. An incision is then made through the capsule. The loose body is grasped with a pair of hooked forceps and is withdrawn. The capsule is closed by a few catgut sutures, and the skin by a silk thread. The joint is splinted for eight days, and on the tenth or twelfth day motion is begun. If this causes any synovial exudate the patients wear a light pressure bandage.

CASTRATION IN PROSTATIC HYPERTROPHY.

Lanz (*Centralblatt für Chirurgie*, No. 50, 1900), on the basis of four cases which he has operated upon, commends castration in the treatment of prostatic hypertrophy as a means of reflexly occasioning decongestion of the prostrate. Since this procedure can be accomplished under local anesthesia it is quite without danger to old and weak people. In three cases he has accomplished complete symptomatic cure. After the first day patients are allowed to be up and about. For the purpose of producing as much destruction of the deferential plexus as possible, the cord is divided high up.

TREATMENT OF WOUNDS OF HEART BY SUTURE.

Elsberg (*Journal of Experimental Medicine*, September and November, 1899) has conducted a series of experiments on dogs and rabbits by which he has found that their hearts could be easily grasped with a forceps and the needle and suture readily passed. He infers that the difficulties of this procedure in the human heart are not so great as has been supposed.

Some patients it is known have recovered from wounds of the heart as large as three centimeters without any local treatment, and suture of the heart has been performed nine times; four recovered entirely, and four died of complications referable to other organs.

Elsberg summarizes his conclusions thus:

(1) Suture of a heart wound as a final resort may often be found worthy of consideration and justifiable. (2) There is no danger of sudden arrest of the action of the heart while being manipulated, unless Kronecker's coordination center be injured. (3) The suture should be of silk, and interrupted; it should be applied so that the epicardium and superficial layers of the myocardium shall be the only ones penetrated, and tied, when possible, during diastole. (4) Each case must be considered by itself for symptoms which would justify operative interference.

SUBARACHNOID COCAINIZATION IN OBSTETRICS AND GYNECOLOGY.

HAWLEY and TAUSSIG (*Medical Record*, Jan. 19, 1901) report fourteen cases of obstetrical and seven cases of gynecological cocainization.

A full-strength solution of cocaine, sterilized in small bottles at 80° C. for one hour on two successive days, was used with a needle about seven centimeters long kept well sharpened. The ears of the patient were closed with cotton, and the mouth was covered with cloth. A nurse, when the puncture was made, stood at the patient's head to keep the back arched forward, and to prevent the patient from suddenly sitting upright.

On the amount of cocaine injected depended the duration of the anesthesia. When it was boiled the anesthesia lasted thirty-five minutes; under Pasteurization the average duration was one hour and fifty minutes.

In nine cases there was some pain; three of these required a few inhalations of chloroform. In only one of the last ten cases did the operation or labor outlast the anesthesia.

In from two to four minutes, as a rule, all sense of pain was gone. In the gynecological cases the anesthesia was complete before the woman could be put in position for the operation.

The influence of the injection upon the nervous centers increased the knee-jerk in nine cases and lost it in one. Dilatation of the pupils appeared in five cases. Three times the heat and cold sense was absent, but as a rule it was not at all impaired. Tactile sense was fully retained.

The patient's condition was usually unchanged, and in four cases there was some improvement of the pulse.

Twelve of the fourteen obstetrical cases had vomiting, which appeared in only three of the gynecological cases. Headache was found in only three cases, and was neither severe nor lasting. Twelve hours after injection there was a rise of temperature to 101°–102° in most of the cases, especially the obstetrical cases. It was noted in only one of the seven operative cases.

In all the cases, after twenty-four hours, the patient was free from any manifestations of the cocaine.

After injection, the pains during labor were neither as prolonged nor as powerful as before. The injection was usually not given until the cervix was completely dilated, and in primiparæ it was often delayed until the head was on the perineum. In five cases the cocaine seemed to have a toxic effect upon the child. Three times the child was somewhat asphyxiated when born. One child died, but there were symptoms of weakness before injection. There was no postpartum hemorrhage; the bleeding was unusually small. The third stage of labor was for about ten minutes only. The perineal body did not seem, however, to relax as well as under chloroform.

A study of the cases seems to show that spinal anesthesia is not very dangerous, except perhaps to the child *in utero*. Disagreeable symptoms, when produced, are usually transient. Labor is retarded. Anesthesia is produced for a fairly definite period without affecting consciousness or full control of the voluntary muscles.

The use of the lumbar puncture in multiparæ would seem to be less called for than inhalations of chloroform. The results were not encouraging in primiparæ.

The spinal narcosis seemed to be satisfactory when urgency was required in instrumental deliveries, and the patient not of a very nervous temperament. The delivery was facilitated by the patient's aid, and the dangers of retained placenta and postpartum hemorrhage lessened.

The puncture seems to have its greatest field of usefulness in vaginal celiotomy and minor gynecological work.

COMPRESS IN THE ABDOMEN EXTRACTED AFTER SEVEN YEARS.

CHAPUT (*Medical Press and Circular*, Jan. 2, 1901) operated on the wife of a *confrère* two years ago for pyostercoral fistula in the median line. Three laparotomies had been

performed previously. The last one, in 1891, was followed by the fistula. A voluminous tumor constituted by a loop of intestine, like the seat of a neoplasm, was found. It felt like a soft mass with a thin envelope, and the suspicion that there was a foreign body in the intestine proved well founded when a piece of iodoform gauze about twenty inches square was drawn from the opened tumor. The wound was sutured, the fistula closed, and the operation terminated by placing a drain. The patient recovered without difficulty.

Pilate and Michaux, in 1892, reported two similar cases. In one the compress was eliminated by the anus, and Michaux had to resect the intestine in the second case on account of the inflammation caused by the foreign body.

SOLUBLE SILVER AS AN ANTISEPTIC.

CREDÉ (*Medical Press and Circular*, Dec. 26, 1900) addressed the Hufeland Society, Berlin, in December, on soluble silver as an antiseptic.

Credé found that silver could not be used as an ideal antiseptic, and that silver foil was inconvenient. Silver laid on a sterile wound remained; on an infected wound it dissolved and disappeared. Cultures experimented with ceased to grow, and after the passage of a portion of the silver into the nutrient soil, as much as ninety-five per cent of lactate of silver was met with. Lactate of silver, despite its powerful bactericidal properties, was found undesirable in practice, but a solution of soluble nitrate of silver (itrol) 1 in 5000 was used in thousands of surgical cases with the best results, even under the most unfavorable conditions, and without a single injurious effect. Bacteria in the secretions of a wound were destroyed or their further development arrested.

Dressings and catgut impregnated with the salt acted well, and no suppuration took place in the suture tracks.

As regards bactericidal action, animal experiments showed that when the virulence was strong the sterile zone was small, and larger when the virulence was less.

In attempts to apply silver as a general antiseptic, colloidal silver was found to be the best form. It was best employed by inunction, a fifteen-per-cent ointment being the most suitable. The skin was first washed, a hyperemia produced by means of a brush and soap, and then two or three grammes of the ointment was rubbed in. In from three to six hours, in cases of severe infection with threatened abscess, the patient's condition was changed for the better, and the appetite increased the next day. One inunction often sufficed. Threatened suppuration, in cases of inflamed glands, was arrested, and in cases of pyemia the threatened suppurations in various directions passed away. In virulent infections the rubbing required repeating in from six to twelve hours.

Credé believes that if the treatment is begun early enough phlegmons would be avoided, and the same with simple septicemia. A lying-in woman, feverish about the third day, would certainly be cured by energetic inunction. The same holds good of erysipelas. It is useful also in cerebrospinal meningitis, acute rheumatism, and typhoid. A case of pneumonia, given up by physicians, was cured after a second intravenous injection; ten to twenty grammes of a half-per-cent solution was given. Dickerhoff and Sarnter have seen very good results from its use in rheumatism and suppurative processes, and in tertiary syphilis.

MODERN SURGICAL TREATMENT OF EPILEPSY.

CLARK (*Medical Record*, Jan. 12, 1901), in remarks on the surgical treatment of epilepsy, declares, as to tumors producing Jacksonian epilepsy, that but two per cent of them, according to statistics, are ever operable, even for the relief of other possibly more dangerous symptoms. He also summarizes the present status of trephining as follows: (1) Idiopathic epileptics with typical grand-mal seizures should never be trephined. (2) Idiopathics in whom seizures are of the Jacksonian type should be trephined only when infantile cerebral palsies can be excluded, and when the family and personal degeneracy is at a minimum; if operation is determined on in such cases, a very thorough removal of the epileptogenic area should be made, and even then but a fraction of one per cent recover from their epilepsy. (3) Traumatic epileptics may be trephined when the injury is definitely proven and stands in direct causal relation, and has existed not more than two years. The prognosis will then largely rest upon the degree of the neurotic predisposition present. The earlier trephining is resorted to after convulsions begin, the better the prognosis.

Many less so-called traumatic cases, if

these rules are followed, will be trephined, but the result will far exceed four per cent of recoveries. All epileptics trephined for whatever cause must be given postoperative bromide treatment for years.

OPERATIVE MANAGEMENT OF HIP-JOINT DISEASE.

JONAS (*Medical Record*, Jan. 12, 1901) at Minneapolis, in December, read before the Western Surgical and Gynecological Association a paper on the operative management of hip-joint disease, drawing the following conclusions: (1) All affected structures should be removed, and all healthy bone preserved. (2) The greatest amount of healthy bone preservation and the consequent insurance of best possible joint function makes early incision imperative. (3) Insurance of best possible function means, besides early evacuation of intra-articular tuberculous products and diseased structure removal, a thorough disinfection. (4) The most effective disinfectant method is the application of carbolic acid and alcohol. (5) The greatest possible obliquity of the upper end of the bone is required if the retention of the femoral extremity in the cotyloid cavity is continued. This must be done by preserving as much of the neck as possible, but a certain obliquity could be obtained by removal of the trochanter major when a portion of the neck is destroyed or removed. (6) A portable extension brace must be used for a long time to insure permanent usefulness of the hip-joint. (7) If it can be, excision of the femoral head, neck, and trochanter must be avoided.

VALUE OF CATAPHORESIS IN CARIES OF THE TEMPORAL AND OTHER BONES.

WILLIAMS (*St. Paul Medical Journal*, vol. iii, No. 1, 1900) writes that it sometimes happens that necrosis of a bone will occur in a locality which the surgeon does not care to invade with instruments, or it may be that operative interference is refused by the patient, or that for sufficient reason the surgeon may not use the knife, and reports the following case:

Some fifteen years ago H. M. came under the author's care, presenting a chronic otorrhea which had existed since babyhood. An examination revealed a slight discharge from a small mass of granulations below and posteriorly at the junction of the membrana tympani with posterior wall of the auditory canal. This case was seen by him at intervals for a number of years. The patient would be apparently well of his trouble for several months, and would then present himself for treatment. On several occasions he had attacks, during which, for days, he would be almost unable to walk about, or would even be confined to his bed with dizziness and occasional nausea. At such times a thorough removal of the granulation tissue at the mouth of the sinus, at the junction of the membrana tympani and auditory canal, relieved all symptoms; which sinus led, apparently, not backward into the mastoid, but around the annulus toward the middle ear, without actually communicating with that space, inasmuch as there was no appearance of anything abnormal in the middle ear, except that the patient had a chronic aural catarrh of both sides.

Things went on this way for a number of years, until the patient was advised to submit to an operation, with a view to removal of any carious bone; and this he did. The mastoid was found to be exceedingly dense, almost eburnated, and exceedingly vascular; it was so vascular that the operation was much more tedious than such operations usually are. One does not like to use the chisel in such a locality with the excavation in the bone completely filled with blood; and because of this excessive hemorrhage the operation was abandoned at the suggestion of a physician, a relative of the patient, who was assisting. The object of the operation had been, not to open the antrum, since while there was a little sensitiveness over the mastoid region there was no suspicion of purulent accumulation in the bone, but it was desired to do what would now be called a modified Staacke, perhaps, to take away the posterior wall without seriously disturbing the membrana tympani. The effect of the operation was, for a time, most excellent, but after a while the old symptoms returned, and with new complications. The patient presented himself one day with a localized bulging of the upper and posterior segment of the membrana tympani, which to the eye and touch conveyed the impression of solidity. After some days a free incision was made in the membrana tympani over this protrusion, with much relief to the patient, who somewhat extravagantly declared that it was like living in a new world. The knife impinged upon bare bone, and no pus was liberated, nor was there any discharge. The

incision would successively close, and would be reopened, always with great relief to the patient, who had felt oppressed with forebodings. About this time the patient complained of numbness in the extremities, of tingling in the fingers, with a queer sense of obsession, and as if a weight rested on that side of the head corresponding to the diseased ear. Interrogation with the point of a small knife passed through the membrana tympani disclosed a sequestrum which could be moved up and down and sideways, producing a sensation of falling, together with great dizziness.

Incising the membrana tympani freely, the external auditory canal was filled with dilute hydrochloric acid, U. S. P., and by means of a selector the electric force was turned on, using the street current of 110 volts. No milliampere was used, but the force was graduated, not by the resistance but by the sensations of the patient. The patient was able to bear, for a period of thirty minutes, a voltage of 36 to 40, and this directly through the head and arm.

These treatments were continued at intervals for several weeks; at first every day, then every other day, in order to allow the dermatitis to subside. The dermatitis produced by the acid, while it is troublesome, should not be deterrent; indeed, it may be of value by increasing the collateral circulation, and thus favoring a resorptive process. The dermatitis will always be found greatest at the superior level of the acid, and may be largely controlled by anointing the sides only of the external canal with fat. A speculum of horn or rubber, or one made of ol. theobroma, and accurately fitted into the canal, would almost entirely prevent any inflammation of the skin. The membrane of the drum was not inflamed by the acid. The result of this treatment was most gratifying, for under it the necrosed bone actually disappeared. The swelling subsided, and since that time the patient has been entirely free from ear trouble on that side, save always his chronic aural catarrh. The dermatitis rapidly subsided, as did the graver symptoms of cerebral mischief.

The patient was for some time rather nervous and apprehensive; but three years later was a healthy man, stronger than ever before.

Hydrochloric acid has been used by numerous surgeons for this purpose; but authorities agree, so far as is known, that its use has been without good result. The author, however, believes that the most brilliant results may be obtained in certain cases by the use of this acid cataphorically. Since using the method of acid cataphoresis in the case of H. M., he has employed it in two other cases, in which there was probably caries, but in which the dead bone could not be felt. In both these cases the results were most excellent. One was that of a young girl with recurrent abscesses over the ear, following a year after operation for removal of carious ossicles. The other was a case of chronic osteitis of the superior maxillary and nasal bones of the left side. Two operations upon the antrum had not materially relieved the swelling or inflammation of that side of the face, which the girl of fifteen said had existed as long as she could remember. Less than a dozen treatments of ten minutes each, using the dilute hydrochloric acid, about one-half strength, the anode point carried into the antrum of Highmore, produced a wonderful change for the better. So well was the girl that she was sent home after a month apparently entirely cured.

The author in all his experiments has added chloride of sodium to the acid used. The sodium salt will be decomposed by the electric force with the liberation of free chlorine; deep and foul sinuses may be rendered apparently aseptic and entirely free from odor in this way.

NEPHROPEXY.

Bazy (*Annales des Maladies des Organes Génito-Urinaires*, December, 1900) describes his method of performing nephropexy.

A cutaneous incision, extending from the costomuscular angle to within a finger's width of the highest point of the iliac crest, is made, and is deepened through the muscles. The cellulo-fatty capsule of the kidney is split, and the posterior surface of the organ is exposed. Three transverse sutures are then placed—the first about the middle of the posterior surface, the second near the lower pole, and the third between these two. These sutures pass just beneath the fibrous capsule of the kidney, parallel to the surface, and the points of entrance and exit are about an inch apart, while the sutures are separated from each other by about an inch and a quarter. The two ends of the upper suture are passed through the eleventh intercostal space; the ends of the lower sutures are passed through the muscles just beneath the twelfth rib. The kidney is then pushed up and the

sutures are tied. The cellulo-adipose tissue is drawn well up and firmly sutured to the muscular tissue just beneath the twelfth rib, thus forming a sort of hammock upon which the lower extremity of the kidney rests. The incision through the muscles and the skin is then closed.

THE AFTER-RESULTS IN FORTY CONSECUTIVE CASES OF VAGINAL HYSTERECTOMY PERFORMED FOR CANCER OF THE UTERUS.

LEWERS (*Lancet*, No. 4036) states that the forty cases, the after-results of which he reports, include all those on which he had performed vaginal hysterectomy for cancer of the uterus up to the end of April, 1899. Up to the year 1893 he had for the most part treated cases of cancer of the cervix by the supravaginal amputation, and reserved total extirpation of the uterus for cases of primary cancer of the body. Since that time he has become thoroughly convinced that an efficient supravaginal amputation is much more difficult to perform than is the operation of vaginal hysterectomy. Among the forty cases there are fourteen in which the disease has not recurred; in two of these, the malignant nature of the affection has not been proven by examination of specimens. In two cases seven years has elapsed, and the patients are known to be well—both of these cases were examined for primary carcinoma of the body of the uterus; in three cases upwards of five years has elapsed; in two cases upwards of four years; one case upwards of three years; three cases upwards of two years; and one case more than one year. There are therefore eleven cases out of the forty remaining free from recurrence from two to seven years after the operation —that is, 27.5 per cent.

Lewers believes that the high percentage of patients remaining free from recurrence is chiefly due to the careful selection of cases. His practice has been generally to examine the cases carefully under anesthesia, and to operate only when the disease has appeared to be limited to the uterus.

The disease is known to have recurred in eighteen cases; in twelve of them recurrence took place during the first year, in two during the second year, in two during the third year, and in two during the fourth year.

The conclusions that appear to follow from a consideration of the facts in this paper are: (1) That in a certain proportion of cases patients suffering from cancer of the uterus may be relieved by operation for periods of many years — in some cases for so long a time, seven years and upwards, that there seems some probability that the relief may be permanent; (2) that the proportion of cases in which this result can be expected must remain very small so long as patients generally only seek advice at a late stage of the disease; and (3) that consequently the great desideratum is early diagnosis. Improvement in this direction depends to some extent on a better appreciation on the part of women themselves of the early symptoms of the disease, and especially of the significance of bleeding after the menopause, or of bleeding occurring at an earlier time of life between the menstrual periods. Early diagnosis also depends partly on the profession. Especially important is the general recognition of the gravity of the symptom just mentioned. It is equally important also to bear in mind that patients suffering from cancer of the uterus may, and generally do for a relatively long period, look quite well. They may be well nourished, or not infrequently even excessively fat; and as regards the aspect of the face, they may appear to be in perfect health.

PREVENTION AND MANAGEMENT OF INFECTION OF THE BREAST DURING LACTATION.

BACON (*New York Medical Journal*, Jan. 12, 1901) calls attention to the important and necessary distinction between infection of the breast and simple hyperemia or congestion of the breast. Infection of the breast, unlike the more or less painful congestion of the breast attending milk secretion, is generally attended with fever, and is often confounded with simple congestion, but is an entirely distinct process.

What is known as "milk fever" has been proved to be due to genital wound infection, for if there is no infection there is no fever. Hence the term "milk fever" should be abandoned. The consideration of the nature, cause, and the diagnosis of infection of the breast forms a basis for the study of its prophylaxis and treatment.

The infection germs are the staphylococcus pyogenes aureus, the staphylococcus pyogenes albus, and in some cases the streptococcus pyogenes. The first two are always, and the last is frequently, found on the skin and in the ducts of the cutaneous glands, and not only around the nipple, but also in the milk

channels and in the milk drawn from sterilized nipples. It is doubtful if the streptococcus albus found in the milk causes infection, but there is no doubt that the bacteria found in great numbers on unclean nipples are a source of danger. Soiled clothing and the unclean hands of the mother or nurse are common sources of infection, and perhaps one of the most dangerous infecting agents is the head or hand of the child. Severe infection has been noticed in patients whose babies had boils on the body, or sore eyes, the pus from which became smeared over the child's face.

The general presence of an abrasion in the epithelial layer of the nipple in cases of infection, and the direct route from the erosion to the depth of the breast furnished by the lymphatic channels, favor the now generally accepted conclusion that the latter, and not the milk passages, is the route of the breast infection.

Simple congestion of the breast, a disturbing factor during the first days of lactation, is often attended with the tenderness of an infection, but chills, fever, etc., are absent. When these develop all doubt concerning the diagnosis between congestion and infection of the breast must cease.

The diagnosis between genital wound infection and breast infection must be made by a study of the predominant symptoms. The greatest difficulty is experienced when the symptoms of breast infection coincide with pelvic tenderness, distention of the breast, and soreness of the nipples. In such a case the determination may require some delay.

It is important to determine whether the infectious process has resulted in the formation of an abscess. The center of the infection and abscess formation is often quite deep, and determination of fluctuation is difficult; in such cases the proper procedure is diagnostic aspiration with the large hypodermic needle. Diagnostic puncture should be made if fever or local pains continue, in spite of treatment, for several days.

Improvement of the general health, both before and after confinement, is most important in the prevention of breast as well as all other infections.

General precautions are cleansing of the nipple with 75-per-cent alcohol, and covering the nipple with sterilized gauze.

The chances for abrasion of the breast are increased if the nipple is not easy to grasp, if the milk flows slowly, or if the child is nursed long.

A nipple shield should be used to prevent wounding of the nipple, and may be used temporarily or intermittently during the first four weeks of lactation. It should be thoroughly cleansed, after nursing, both inside and outside, by washing with running or boiled water, and then drying it with clean gauze. The use of boric acid solution for this purpose should not be tolerated.

Symptoms of chills and fevers generally indicate a deep infection of the breast, and nursing should then be stopped, the breast supported and put at rest by a proper bandage. If this is done, eighty to ninety per cent of cases will terminate without abscesses.

A double Y bandage, made of strong cotton cloth, consists of a back piece four or five inches wide and fourteen to twenty inches long, with two diverging strips at each end from four to five inches wide and about thirteen inches long. The lower part of the Y's is fastened in front under the breasts with safety-pins, and then the upper part in the same manner. With this bandage the nipple of the sound side may be left free. If a circular bandage is used, with an opening to allow the child to be nursed from the sound side, the nipple and areola will have to be protected by a pad of gauze under the bandage.

To patients having abscesses of the breast, the method of infiltration anesthesia has been of great value; by its use an abscess may be opened without pain, and so may be opened early. A second or third abscess may also be attended to with little trouble and expense. After careful skin disinfection, a few drops of Schleich's solution No. 2, using an aseptic hypodermic syringe, makes the short line of incision anesthetic. The pus, after incision, is washed out with sterilized water, and a few sterile or iodoform threads are introduced for drainage. A strict antiseptic dressing is applied, the breast bandaged very firmly, and in twenty-four hours the drainage is removed. The wound is kept open by irrigation for a day or two longer, when it will generally close of itself.

EXTERNAL DRAINAGE OF LUNG CAVITIES.

WILLS (*Journal of the American Medical Association*, Jan. 5, 1901) describes two cases of operation for external drainage of lung cavities that are unique, (1) because the patients, being tuberculous, had been given up to die; (2) because operation

was consented to; (3) because of behavior under ether, due to impaired respiratory power; (4) because of immediate improvement after operation, as to temperature, pulse, cessation of fever and cough, and cessation of expectoration as soon as drainage was secured; and (5) because of the establishment of a point of least resistance for the discharge of the pus, the purpose of the operation, indirectly.

The first case was unlike the second in history, physical strength, and in other ways. There was direct communication between the abscess cavity and the bronchus; in the second no apparent vent existed. Each patient, however, as a result of septic absorption, was dying, and prompt surgical interference was suggested as the only means of relief. As soon as drainage was secured the septic symptoms ceased.

Until the consolidated area about the abscess cavity ruptured in the direction of the incision of the chest wall in the first case, there was no pus in the pleural space when it was opened. Damming back of the pus was proven by cessation of the cough and expectoration for eight days after the operation, when the patient was nearly choked by a sudden gush of intensely fetid pus upward. Some of it passed at the same time through the chest wall incision, and while it continued there was no cough nor expectoration, thus proving that gravity drainage was effectual. The patient, though exhausted and run down, gained slowly and steadily, and having the best climatic conditions, recovered. He would have died had he remained among tuberculous patients.

The physical condition of the patient in the second case was much less vigorous than that of the first. He is now convalescent, and under medical care; but should he not recover, he would prove the correctness of the theory of treatment. His septic symptoms stopped at once, his temperature fell, he did not cough, was more comfortable, gained weight slowly but steadily, and left the hospital at the end of the eighth week. The patient almost collapsed on the table from the ether, and the operation could not be completed as planned. Exploration with the finger, however, accomplished indirectly what would have been done had the operation been prolonged. Wills does not think that the merit of the operation was detracted from by the fact that the expected was not done nor found. He says: "A half-completed operation is better than a dead patient, and the beneficial results from the half-finished and changed plan of operation are just as satisfactory to the patient if not to the operator. These patients knew exactly what they had to expect — discomfort, suffering, and certain death under the usual let-alone or roundabout medicinal plan of treatment on the one hand, and a slim chance of betterment by the proposed operation on the other. The second patient was being examined in the office when the first came in, looking so robust and well that these men, the one recovered and the other considering the same plan of treatment, were introduced to each other and had many talks before the second consented to operation, and that he did so was only due to the proof of benefit exhibited to him by the other man's recovery and his satisfaction with operative treatment."

PREGNANCY FOLLOWING REMOVAL OF BOTH OVARIES AND TUBES.

MORRIS (*Boston Medical and Surgical Journal*, vol. cxliv, No. 4, 1901) reports the following case:

Mrs. J. A. G. came under his care about May 1, 1898, on account of dysmenorrhea. Vaginal examination revealed a slight laceration of the cervix, and a small amount of discharge from its glands. The uterus was anteverted and fixed, so that it was immovable laterally, but movable to a limited degree anteroposteriorly. The body was moderately tender. On the right of the uterus was apparently a cystic ovary, and a thickened tender tube; on the left there was a thickened tender tube, but the ovary was not felt. There were no bladder symptoms. Hot vaginal douches were ordered, and three weeks later, under ether, the uterus was dilated and curetted, with the hope of improving her condition before opening the abdomen. The operation was followed by marked relief of her symptoms for about two months. On July 18 she entered the Carney Hospital for the abdominal operation.

The abdomen was opened, and numerous adhesions found between the ovaries, tubes, and surrounding parts. A very long appendix was adherent by its tip, and released. The right ovary contained a cyst as large as a hen's egg, and the left ovary a hematoma nearly as large as the cyst. The ovaries and tubes were tied off with silk quite close to the uterus and removed; the abdominal wound was closed with silkworm-gut. The patient made a rapid recovery.

She began to menstruate soon after the operation, and continued to do so regularly and painlessly for about four months. The dyspareunia disappeared, and her sexual appetite became normal. In May, 1899, she consulted the author on account of morning sickness, nausea, cardialgia, and also abdominal enlargement, and was anxious to know whether she had a tumor. An examination showed clearly that she was pregnant. On September 12, 1899, she was delivered, after a natural labor, of a healthy girl. About two or three weeks after confinement her baby died, and soon after that she menstruated, and has continued to do so regularly and normally since.

Among the cases previously published is one by Dr. George J. Engelmann, formerly of St. Louis, now of Boston. In this case pregnancy followed a double ovariotomy in which the right tube was left intact. A microscopic examination made of the specimen later showed that some ovarian tissue had been left.

Regarding supernumerary ovaries Garrigues, quoting Biegel, says: "Supernumerary ovaries have been found twenty-three times in 500 bodies. In a case reported by Winckel there were three ovaries and three ovarian ligaments. Regarding the passage of the ovum into the uterus, a ligature may have dropped off, leaving the stump of the tube open, or there may have been another ostium between the ligature and the uterus. In a case of the author's, operated on seven years ago, there was a Fallopian tube with two ostia, each surrounded by fimbriæ. The condition escaped his notice at the time, and was afterward pointed out to him by Dr. H. R. Fitz.

OPERATIVE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

HAHN (*Deutsche Zeitschrift für Chirurgie*, Bd. 58, Heft 1 u. 2, 1900) alludes to the admirable work done by Fitz in the study of acute hemorrhagic pancreatitis.

If the patient survives the immediate effects of an attack of this kind there is likely to develop suppuration and more or less extensive necrosis of the organ. Especially striking in these cases is the characteristic fat necrosis, not only in the pancreas but in the neighboring organs, or even in intraperitoneal regions remote from the pancreas. Indeed, this fat necrosis has been held to be the cause of the pancreatic disease. It is interesting to note in this relation Simond's case, a man thirty-three years old, who had been shot through the pancreas, and on whom section was performed for the purpose of checking hemorrhage. He died, and the autopsy demonstrated the wounding of the pancreas and extensive fat necrosis of the peritoneum.

Schmidt describes a similar case. This patient, having been crushed and having developed symptoms of acute obstruction, was opened, but without beneficial effect. The autopsy showed a tear passing transversely through the entire pancreas, the duct being completely divided. The fat of the peritoneum was necrotic over a very wide area. There was, moreover, fat necrosis in the mesentery, in the great omentum, and in the wall of the omental bursa, especially in that part lying close to the anterior surface of the pancreas. There was moderate bleeding from the pancreatic wound. This case proved beyond doubt that fat necrosis is due to a pancreatic secretion.

Pure suppurative inflammation of the pancreas very rarely leads to fat necrosis.

Körte, in his analysis of forty-one cases of hemorrhagic pancreatitis, states that they could be attributed, in six, to alcoholism; in seven, to gastric troubles; in two, to previous trauma; in nine, to an enormous deposit of fat. In some cases no cause could be found.

The disease develops most frequently in men between forty and sixty years of age, quite suddenly, beginning with pain in the epigastric region and vomiting. The belly becomes distended and especially tender in the epigastric region; pressure here often occasions hiccoughing. Moreover, there is often experienced in this region slight resistance, and the elasticity may be compared to that of an air pillow. The face is cyanotic and cold, the hands and feet are cold and covered with cold sweat, the pulse frequently runs to 160, the patient is weak and collapsed; and death commonly occurs, while the patient is in this condition, on the third or fourth day. Usually there is constipation, but in some cases diarrhea is noted. The symptoms have been properly compared by Curschmann to those characteristic of cholera. The patients present the appearance of a profound infection or intoxication. The condition is usually mistaken for ileus.

Hahn has seen five cases of hemorrhagic

pancreatitis and has operated upon four of them. The first case was a fat man, fifty-six years old. He was taken suddenly with the characteristic symptoms associated with icterus, and copious, explosive vomiting, bringing up eleven quarts of bile a day. On the fourteenth day of his illness laparotomy was performed, the diagnosis of duodenal occlusion from gall-stone having been formulated. On opening the abdominal walls a large elastic tumor was felt behind the stomach. Exploratory puncture through the gastrocolic ligament resulted negatively. The wound was closed because the patient was too collapsed to permit of proceeding further, and death followed in ten hours. At the autopsy, the lesser omentum was found to be full of gas and a slimy fluid. In the neighborhood of the stomach and the transverse colon there were many areas of fat necrosis. The pancreas was completely necrotic.

The second case, fifty-six years old, had suffered ten years from catarrh of the cæcum. He was taken suddenly ill in the characteristic manner. The distention was particularly noteworthy in the epigastric region. Percussion dulness was normal. He was opened on the third day of the attack, and died the following day. There was extensive fat necrosis of both the pancreas and other parts of the peritoneal cavity.

The third patient was forty-nine years old, a moderate drinker, and a heavy eater. He had suffered for ten years from gall-stones, had been subject to trauma, and suffered from grippe. He was taken with the disease in the characteristic manner, and was opened on the third day of his attack. A considerable quantity of chocolate-brown fluid was evacuated, and many areas of fat necrosis were seen. This patient recovered.

The fourth patient, forty-eight years old, was not operated upon. He died on the fourth day of his attack. The pancreas was completely hemorrhagic and necrotic.

The fifth patient was twenty-three years old. He had been shot with a seven-millimeter revolver. On operation the ball was found to have passed through the left lobe of the liver, to have escaped the stomach, and to have passed through the pancreas. There was extensive retroperitoneal effusion of blood. Fully a quart was evacuated through the abdominal cavity. The wound was thoroughly drained, and the patient recovered.

The author notes the fact that of the twenty-one operative cases collected in literature, all but one died. It is therefore not astonishing that many authors strongly advise conservative treatment, holding that the best results will be obtained by the use of morphine and washing of the stomach and bowels, waiting until secondary suppuration has occurred before taking more radical measures.

Hahn, considering the profoundly shocked condition in which these patients are usually found, advises strongly against extensive operation. He believes a small incision should be made in the midline, just beneath the navel, and if the presence of fat necrosis can be determined, the peritoneal cavity should be drained with iodoform gauze.

A CASE OF VESICAL IMPLANTATION OF THE URETER BY DUDLEY'S FORCEPS METHOD AFTER THE FAILURE OF SEVERAL PLASTICS.

REYNOLDS (*Boston Medical and Surgical Journal*, vol. cxliv, No. 4, 1901) examined a woman forty-five years old suffering from ureterovaginal fistula following difficult labor.

The vagina was short and senile, with exceedingly thin walls and vault. The left side of the vault was a mass of tough cicatricial tissue from repeated operations, in the center of which could be seen an orifice, of a caliber not more than No. 4 or 5 French, from which urine leaked intermittently as from a ureter, except when the patient bore down, when it appeared in quantity as though from the bladder. The vagina was dressed with oleate of zinc and iodoform gauze, and two days later it was thought to be in a sufficiently normal condition to warrant an exploration of the fistula. The probe soon showed that in addition to a channel which passed upward and backward and was undoubtedly the ureter, there was another which turned forward toward the bladder, though nothing could be made to pass it.

The patient was etherized, and after failing to pass a catheter into the bladder from the vagina, the bladder was exposed with a Kelly cystoscope, and a fine catheter was easily passed from the ureteral orifice back into the vagina. Another was passed into the ureter through the fistula, after a slight dilatation of the cicatricial opening in the vaginal vault, the two thus entering through the same opening. After an incision through the mucous membrane of the vagina completely surrounding these catheters, the

author was able to follow the ureter both ways under the guidance of the catheters. The distal end was traced into the bladder wall, after dissecting it for about one-quarter inch. The proximal end was separated from the dense cicatricial tissue in which it lay with the greatest difficulty, for about one-half inch, at continual risk of opening into the peritoneum. Having gained enough to be able to bring the ureter into contact with the bladder wall without tension, it was thought unwise to increase the risk by further dissection. The catheter was then withdrawn, the vesical end of the ureter was dilated by passing a No. 20 French bougie through it, the island of mucous membrane was cut off, thereby separating the two ends of the ureter, the vesical end of the ureter was dilated to No. 15 French by a bougie, a provisional stitch was passed through the renal end, drawn into the bladder through the dilated ureteral orifice, and out through the urethra. Tension on this easily drew the renal end of the ureter into the bladder, inverting the vesical end of the ureter, and thus resulting in the approximation of a considerable extent of raw surface. The ureter was now fastened to the bladder wall by two sutures of fine catgut, and every effort was made to take off tension by firm and extensive coaptation of the surrounding tissues with many catgut sutures. No catheter was inserted, the patient being left to pass water voluntarily. A vaginal douche of weak corrosive solution was given daily; the patient was kept on salol and urotropin, with free use of cream of tartar.

Three weeks later the vesical end of the ureter had become obliterated so that there was no regurgitation from the bladder, but the renal end was still discharging as before into the vaginal vault.

The author again made an incision into the vaginal vault, and readily freed the ureter to the point which he had reached before, but again feared to pursue it further into the cicatricial tissues amid which it lay. He then freed the bladder from the tissues behind it for some little distance above the vaginal cut, made a small incision through the vesical wall, passed a pair of ordinary though rather fine-pointed artery forceps through the urethra into the bladder, and then separating them slightly passed one blade out through the cut in the posterior vesical wall. The free end of the ureter was then threaded upon the projecting blade of the forceps, the forceps closed, and the handles tied. The closing of the forceps carried the ureter very high up upon the bladder wall, and left a very deep vaginal wound, which was sutured together with many layers of running buried sutures. The operation was followed by three days of pyrexia, similar to that which followed the first operation, at the end of which time the urine contained pus, triple phosphates, and casts in abundance. It was passed voluntarily and easily from the start.

Thirteen days after this operation the urine contained a few casts, a little pus, and of course a trace of albumin, but was otherwise essentially normal. The wound was firmly healed. Light traction was made upon the clamp every day in the hope of bringing it away, but without success, until the twentieth day after the operation, when it was opened and immediately came away without effort. Two days after the removal of the clamp a careful endoscopic examination of the bladder was repeated; the ureteral insertion was found to be represented by a minute orifice surrounded by a spot of reddened mucous membrane about the size of a split pea. The rest of the bladder was entirely normal, and except for the high situation it would have been difficult to distinguish the new ureteral orifice from a normal one. A few days later the patient was discharged well.

The chief risk of failure in ureterovesical implantation is always from the slipping away of the ureter, owing to the thinness of its walls, and the consequent difficulty in its secure suture to the bladder. This danger is entirely obviated by the Dudley method of securing the ureter and bladder together by forceps. The presence of the forceps must at the same time direct the stream of urine into the bladder, and in this case, at least, its presence in the bladder caused no discomfort. But it is thought this could hardly be the rule. The high position given to the ureter and the tension upon it, due to the closing of the forceps, also produced a very deep and therefore extensive surface for union between the bladder and vaginal wall. In this case the ureter and kidney had evidently been infected during their long drainage into the vagina, and it is probable that the loss of union after the first operation was due to the infection of the wound by the decomposed urine which succeeded each operation; under these circumstances the case was probably peculiarly well adapted to show the advantages of Dudley's forceps operation.

COCAINE VERSUS EUCAINE IN SPINAL ANESTHESIA.

BAINBRIDGE (*Medical Record*, vol. lviii, No. 24, 1900) remarks that his cases so far have proved more satisfactory when cocaine has been employed. In one patient he had the opportunity of noticing the effects of both cocaine muriate and beta-eucaine hydrochlorate at different operations. The after-effects seemed no greater in one than in the other, and the analgesia was not so uniform or lasting when eucaine was employed. Most of the experimenters with this method of operating are using cocaine, but Lugueu and Kinderdjy are strong advocates of eucaine and are discarding the former in preference to the latter.

No final verdict for or against spinal injection, or what remedy is best to use, can be reached without further experimental evidence. The remote after-effects are yet to be determined.

THE PYREXIA OF SYPHILIS.

BASSETT-SMITH (*The Lancet*, No. 4034, 1900) narrates the case of a man, aged twenty-five years, who had been invalided from the West Indies for fever of an irregular type, and was under treatment for post-influenzal pyrexia, being then very anemic. He returned to duty for six months, but he was again admitted to the hospital in August for malaria. Examination of his blood showed no evidence of this, but it was noticed that there was a relatively great increase of lymphocytes, as distinct from the polymorphonuclear leucocytes (neutrophiles). On a blood-count being made there was seen to be a reduction of the red cells (2,800,000) without nucleated forms, but only a slight total increase of white cells (13,600). This, with the marked anemia, tendency to epistaxis, and slight enlargement of the glands in the groin, led to the diagnosis of early lymphatic leukemia. His temperature was remarkable, varying as much as 7° F. at times between night and morning, but without rigors, and with scarcely any constitutional symptoms. The patient was treated with arsenic, iron, digitalis, etc., for ten weeks, and for a short time with mercury with chalk. Regular examinations of the blood showed the same characters, with an extraordinary abundance of blood-plates, this being beautifully demonstrated by using Louis Jenner's stain. As there was an old history of syphilis he was later put on iodide of potassium and bark, with the result that in three days the temperature fell to normal and never again rose.

This question of treatment is interesting as agreeing with the experience of Dr. T. D. Savill that the iodides give more favorable results than mercury, for though early in the course of the disease this patient was taking the latter remedy, the temperature did not fall to normal. Cabot states that in certain stages of syphilis there is a decrease in the number of red cells and an increase of lymphocytes, as was found in this man, but he does not mention the increase in the blood-plates. The peculiar intermittent fever with such intense oscillations is noticed by Dr. Burney Yeo, and a similar case is reported by Dr. Sidney Phillips, in which the pyrexia lasted for months, resembling tertian ague, but yielded at once to iodide of potassium. It is probable that many cases of indefinite fever so common in the services are of this character.

ACUTE HEMORRHAGIC PANCREATITIS; ITS SURGICAL TREATMENT.

LUND (*Medical and Surgical Reports of the Boston City Hospital*, 1900) submits the following conclusions and remarks on technique:

Milder cases of acute pancreatitis or peripancreatitis recover both with and without operative intervention. Severer cases require operation, which should be performed early, for the following reasons:

1. Because the primary hemorrhage in itself (Flexner) leads to necrosis and disintegration of gland tissue, and the hemorrhage may be stopped and further necrosis, both of fat and gland tissue, prevented by gauze packing and adequate drainage.

2. Because the patient is in far better condition to withstand an operation early in the disease than later when weakened by suppuration in the lesser peritoneal cavity, and necrosis of much fat and gland tissue.

A certain class of cases in which the primary shock is so severe as to render operation out of the question must be excepted from the operative cases.

The mortality from pancreatitis will undoubtedly be high, but there is reason to hope that with early operation, and adequate provision for lumbar drainage, it may be considerably diminished.

As the diagnosis must, in a large percentage of cases, be tentative, the first or explora-

tory incision should be made in the median line above the umbilicus. This incision may, in severe cases, be made with advantage under local anesthesia. On account of the weak condition of most of the patients rapid operating is essential. The gastrohepatic omentum must be traversed to reach the lesser peritoneal cavity. Masses of blood-clot and necrotic fat should be rapidly evacuated. Further hemorrhage may be stopped by gauze packing. It will be generally impracticable to search for bleeding points.

Where the mass of blood-clot or the abscess cavity has extended into the left lumbar region, adequate drainage must be provided by a lumbar incision made on the finger passed into the cavity. This dependent lumbar drainage is probably the most important step of the operation, since in the majority of cases it will probably not be possible to drain successfully through a median incision, as was done by Finney in Thayer's case. In case symptoms at the base of the left pleural cavity point to pocketing of pus above the spleen, the subphrenic space should be drained by resecting the tenth or eleventh rib in the posterior axillary line. The pleural cavity will be opened, but will be probably walled off by adhesions. At any rate, drainage of this pocket is essential, in order to avoid perforation of the diaphragm by the abscess. Drainage of the subdiaphragmatic space above the spleen would probably have saved one patient, in whom the upper part of the pleural cavity was walled off. Careful diagnosis, rapid operating, and careful nursing will be necessary to save these cases, as the proximity of the inflammatory process to the solar plexus, the diaphragm, heart, lungs, stomach, and duodenum, together with the deep situation of the pancreas, all contribute to make its inflammation so dangerous and difficult as to tax to the utmost the art and skill of the surgeon.

THE RESULTS OF OPERATIONS ON VARICOSE VEINS.

BLAKE (*Medical and Surgical Reports of the Boston City Hospital*, 1900) submits the following conclusions:

1. Operation for radical cure of varicose veins by dissection is not successful in every case.

2. To obtain successful results, cases must be selected, and certain conditions avoided, and recommended to palliative treatment.

3. The conditions which will probably militate fatally against satisfactory results are: (*a*) Old age, or an extremely debilitated condition; (*b*) excessive and very extensive varicosity; (*c*) occupations which to an extraordinary degree favor the development of varicose veins.

4. Cases which may be cured by a thorough and careful operation are: (*a*) Local varix, even of marked prominence, particularly if thrombosis has occurred, either in thigh or lower leg; (*b*) extensive varix, limited to a single venous stem; (*c*) varicosities which are a bar to passing civil service, military, or naval examination; (*d*) cases in youth and middle life; (*e*) cases in which the development of the permanent varicosity was at least partially due to more or less removable conditions (flatfoot, garters, etc.).

5. Operation, even if not entirely successful, will usually relieve such complications as thrombosis, hemorrhage, and ulceration.

6. The usual conditions which follow unsuccessful operation are: (*a*) Pain in and around the scar; (*b*) general swelling and tenderness of the leg; (*c*) development of varicosities above or below the operation scar, but not at the site of the operation itself.

7. In all operated cases general systemic treatment as well as local treatment should be prescribed, together with exercise and the avoidance of a continued upright position whenever possible.

8. Cure of symptoms does not necessarily mean the removal of all visible varicosities.

9. Comparison of relative methods of multiple ligation and continuous dissection must be based upon a larger number of cases than are here recorded.

Reviews.

A TREATISE ON SURGERY BY AMERICAN AUTHORS FOR STUDENTS AND PRACTITIONERS. Edited by Roswell Park, A.M., M.D. Condensed Edition, with Revision. Philadelphia and New York: Lea Brothers & Co., 1899.

After a period of literary activity in the domain of surgery conspicuously manifested not only in this but in other countries by the tendency toward the publication of systems in many volumes, it is with a distinct feeling of satisfaction that the somewhat overburdened practitioner notes a return to the older, and for him better, method of condensing the knowledge which has been ac-

quired in this branch of medicine in a single volume of some 1200 odd pages. For it is undoubtedly true that the greater elaboration which a system allows is useful chiefly to the specialist and to the writer. The essential points of pathology, diagnosis, prognosis, and treatment can be thoroughly covered in a space not greater than that which Park has taken in his admirable work; notable, first, from the number of distinguished men who have contributed special articles. Among these can be named Belfield, Bull, Dennis, Gerster, Hare, Kelsey, Lovett, Matas, Nancrede, Ransohoff, Richardson, and Souchon, with others of equally high standing in the profession.

Surgical Pathology, including Surgical Fevers and Infections, and Surgical Diseases Common to Man and the Domestic Animals, is contributed by Park. This large subject is covered in 128 pages more thoroughly and practically than in triple the space devoted to it in many other books.

Fordyce writes a chapter on syphilis, which is well illustrated. He believes that syphilis in healthy individuals in early adult life is in the majority of cases a benign infliction, often disappearing without treatment, and producing little if any impairment of the general health.

Gonorrhea and its sequelæ are treated by Belfield. For anterior urethritis, he prefers pure santal oil. The internal medication consists of calomel in quarter-grain doses, three to six times a day for one or two days. For the next six days a half-teaspoonful of potassium bitartrate and five grains of sodium phosphate in a glass of hot water is given night and morning, after which the calomel may be repeated. Twenty minims of good santal oil or a teaspoonful of fresh cubebs may be given from four to eight times daily as the stomach permits. Of all local remedies, hot water holds the first place, and cannot be used too often. It should be applied to both the exterior and the interior of the penis. After syringing the urethra with hot water, either a saturated solution of hydrastin muriate or of zinc permanganate, one grain to eight ounces of water, is used. These injections should be made from six to ten times per day. When the acute symptoms subside, a zinc chloride solution, one-half grain to six ounces, is substituted for the permanganate.

It is interesting to note that Park advises morphine subcutaneously in the restless type of shock

Part 4 of this book is devoted to injury and repair, and is contributed by Nancrede, who writes in his characteristic lucid and direct style.

Under the general heading in Part 5 are found such subjects as cysts and tumors, surgical diseases of the skin, burns, scalds, and frost-bites, injuries and diseases of the joints and joint structures, fractures, and dislocations.

Part 6 is devoted to special or regional surgery, and includes hernia, diseases of the rectum and sigmoid flexure, and genito-urinary surgery, together with many other chapters.

Bull writes concerning the surgical diseases and injuries of the eye and orbit, and on skiagraphy or the application of Roentgen rays to surgery.

Considering the fact that this work is profusely illustrated, printed for the most part in large type, and covers the entire ground of surgery, even including the surgical diseases and injuries of the female reproductive organs, the work of condensation has been accomplished with remarkable skill. The book is likely to prove of great value to the surgeon, to the general practitioner, and to the student of medicine.

MEDICO-SURGICAL ASPECTS OF THE SPANISH-AMERICAN WAR. By Nicholas Senn, M.D., Chicago. American Medical Association Press, 1900.

This extremely interesting book is to be regarded rather as the expression of personal impressions and opinions than as a complete medical and surgical history of the Spanish-American war. It does not lack in its humorous side, as, for instance, the picture of Company B, Seventh Regiment, Illinois Volunteers, after the medical examination, in a costume which would be deemed adequate only among the least civilized peoples.

The book opens with a description of Camp Tanner and of the Illinois army, the distinguished author not neglecting to pay a fitting tribute to the personal grace and sympathetic heart of Mrs. Tanner. The details of examination are briefly described, and some comments are made on the camp diseases. The scene shifts to Chickamauga, the routine camp-life of which is graphically described; thence to the hospital ship *Relief;* and thence to Cuba, with the difficult landing and the inadequate transportation. The scenes after the battle of Santiago are lightly touched upon; and there follows some comments on the wounded.

Senn holds, what practically the experience

of all military surgeons teaches, that the fate of the wounded rests in the hands of the person who applies the first dressing. He notes that four laparatomies for penetrating gunshot wounds of the abdomen were performed at the First Division hospital, the only ones to his knowledge during the Cuban campaign; these patients died.

The invasion of Porto Rico is treated from a medical standpoint. The question of typhoid fever, as it came up for consideration in this campaign, is discussed at length. Senn makes a successful defense of the Medical Department, and accords a well-earned tribute to the relief societies. Considerable space is devoted to the surgery at Camp Wyckoff. There is a section of the book devoted to the qualifications and duties of a military surgeon. Among the titles which strike the eye as unusual may be mentioned "Esculapius on the Field of Battle," "A Thunder-storm before Santiago de Cuba," "The Humane Side of Warfare," and "A Midnight Adventure during the Spanish-American War."

Senn has given us an enjoyable description of what he has seen, and some clearly drawn conclusions derived therefrom. The book is thoroughly readable.

URINARY DIAGNOSIS AND TREATMENT. By John W. Wainwright, M.D.
Chicago: G. P. Engelhard & Co., 1901.

This is a small octavo of a little over 100 pages, and deals with the subjects named in the title. The larger part of it is taken up with analysis, and comparatively little is devoted to therapeutics, save that some of the final pages contain prescriptions for various conditions. The book closes with a series of plates which are much better than those commonly found in small books upon urinary analysis.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS; OR THE ACTION OF DRUGS IN HEALTH AND DISEASE. By Arthur R. Cushny, M.A., M.D. Second Edition, Revised and Enlarged. Illustrated.
Philadelphia and New York: Lea Brothers & Co., 1901.

Eighteen months ago the first edition of Dr. Cushny's valuable work upon Pharmacology made its appearance. At that time we called attention to the scope of the work, and criticized some of the classifications of drugs which we thought artificial. But over and above these criticisms we took pleasure in emphasizing the fact that it was destined to prove a standard work, and that while it did not contain as much material for the busy practitioner as some other books, it was nevertheless a most excellent one to be put into the hands of students in order to give them a broad grasp of scientific pharmacology and therapeutics. It is hardly necessary for us to point out that the second edition of Dr. Cushny's book is better than the first. He has been able to correct errors which always creep into first editions, and to bring up the text to a more recent date. For this reason we commend it even more heartily than before, for it is a credit to him and the profession he represents, and lifts the use of drugs from the valley of empiricism to the heights of rational therapeutics.

DISEASES OF THE HEART: THEIR DIAGNOSIS AND TREATMENT. By Albert Abrams, A.M., M.D.
Chicago: G. P. Engelhard & Co., 1901.

Physicians who read medical journals constantly must have already become familiar with the name of Dr. Abrams, who has for many years made a number of original contributions of value to the pathology, diagnosis, and treatment of cardiac diseases. The present little octavo of about 150 pages deals in eight chapters with various cardiac diseases. After an introduction to diseases of the heart, it proceeds to diagnosis and then to the general treatment of these affections; then on to affections of the pericardium, endocarditis and valvular diseases, cardiac neuroses, arterial diseases; and finally there is an addendum in which is given a certain amount of statistical information or summary of the various conditions of the blood.

PHYSICAL DIAGNOSIS IN OBSTETRICS. By Edward A. Ayers, M.D. Illustrated.
New York: E. B. Treat & Co., 1901.

This book is intended as a guide in antepartum, partum, and postpartum examinations for the use of physicians and undergraduates, and contains ten chapters which are devoted to the subjects which we have enumerated, and in addition a very large number of illustrations, many of which are photogravures, and all of which seem to us to be unusually good in that they illustrate the text. The book is to the ordinary workers upon obstetrics what a book on physical diagnosis is to one upon the practice of medicine; and it is more than its title indicates, for from time to time we find through its pages directions as to the methods which should be employed for the relief of various obstetrical conditions. We wish to cordially commend it to our readers, as we feel that it would be a very distinct aid to them in obstetric practice.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

Since my last letter the whole nation has been thrown into mourning by the death of Queen Victoria. The final scene has come somewhat as a shock to most of us, who have been quite unacquainted with the anxiety for her condition for some twelve months past. Dyspeptic and other transitory symptoms had warned her physicians long since that all was not well within, though it was impossible to decipher any bodily disease. A few days before the short final illness transient but recurrent symptoms of apathy and somnolence with aphasic indications and increasing feebleness gave great uneasiness to her physicians; from that time onward the cerebral exhaustion steadily progressed, and the aphasia and slight facial paresis that had appeared became permanent. Slowly but steadily life ebbed out, and the best of sovereigns passed to her rest.

I have avoided sending any account of the epidemic of arsenical poisoning in the north of England and in the Midlands until the evidence was complete. We have recently been fortunate enough to hear an admirable exposition of the facts from Dr. Septimus Reynolds, of Manchester, who has played a principal part in tracing the epidemic to its source in beer, and as the matter is one of universal importance I will endeavor to give an outline. The first feature to attract attention was the occurrence of an unusual number of cases of indefinite skin eruptions, such as erythema, keratosis, and pigmentation, particularly among pauper patients. Incidentally we may remark that the observation throws a strong light on one of the chief determining causes of pauperism. A few months later about six patients presented themselves in as many days suffering from typical erythromelalgia, not only of the feet but of the hands as well, while cases of herpes zoster became remarkably frequent. Subsequently a succession of cases of so-called "alcoholic paralysis" applied for admission to the Workhouse Infirmary. It is difficult to fall in with Dr. Reynolds's disbelief of the dependence of any case of "alcoholic neuritis" on ethyl alcohol, for there are certainly many cases of the disorder in a typical form that cannot be traced either to arsenic or to beriberi, and in which there is an unmistakable antecedent history of spirit drinking. Here, however, we come to a conflict of fact, as Dr. Reynolds asserts that he has never seen a case except among beer-drinkers. His next observation was that the skin eruptions and the neuritis occurred in the same subjects, and here was the key to the discovery, for arsenic is the only drug known to produce herpes. Thereupon the beer was tested for arsenic by Reinsch's test, and well marked crystals of arsenious oxide were found.

Meantime Professor Delépine had succeeded in tracing the arsenic to certain sugars used in brewing. These were invert sugar, made by the action of sulphuric acid on cane-sugar, and glucose, made by the action of sulphuric acid on various forms of starch. Large quantities of arsenic were found in the sulphuric acid, which is made from a highly arsenical Spanish pyrites. The quantitative analyses of Professor Delépine were given by Dr. Reynolds as follows, the arsenic being estimated as arsenious oxide: Various beers were found to contain from two to over four parts per million — that is, from 0.14 to 0.3 grain per gallon. The invert sugar contained 0.25 part per 1000, the glucose 0.8 per 1000, and the sulphuric acid no less than 1.4 per cent, or four ounces per gallon. As Dr. Buzzard pointed out, on the average of the samples of beer investigated, a patient would take a quantity of arsenic equivalent to about two-thirds of a minim of Fowler's solution to a glass, and a moderate drinker would only take a very small proportion of the amount of arsenic given to an epileptic patient. This would suggest either a special tolerance to arsenic in combination with bromides, or a special intolerance to arsenic in combination with alcohol, or some casual susceptibility of the individuals to arsenic in any form. The latter condition is of course not unfamiliar, but at a much higher dosage than that named.

Arsenic may also get into beer from other sources. Thus it is contained in hops treated with sulphur; in samples of malt, finding its way there either from sulphur or from anthracite coal; also in the vulcanite tubes used for conveying the beer to the pumps; while sulphuric acid is occasionally used, and calcium bisulphate both in "fining" the beers and in cleansing the barrels.

It is impossible to estimate the extent of the present epidemic, but at the lowest cal-

culation 2000 cases are known to have occurred in Manchester alone. The clinical picture derived from so extensive a series of cases is well worth a careful study. It will perhaps be more readily appreciated if at the outset we summarize the main conclusions. Arsenic is a cumulative poison that affects both the skin and the respiratory and digestive mucous membranes, the sensory and motor nerve trunks, the voluntary muscles and cardiac muscle, and the liver. Reynolds corroborates Brouardel's statement as to the sequence of symptoms; they are: (1) digestive symptoms; (2) laryngeal catarrh, bronchitis, and acute skin symptoms; (3) disturbances of sensibility; and (4) motor paralysis (and pigmentation and keratosis). The cases fall roughly into four groups: (1) Those with all symptoms fairly well marked; (2) those with skin lesions principally; (3) those with cardiac and hepatic lesions principally; (4) those with paralytic lesions principally. The course of the disease is slow; the digestive and bronchial catarrh pass off first, then the acute skin lesions that give place to chronic. The sensory symptoms may last for months, and the motor symptoms even up to two years. In fatal cases death is usually due to heart failure, either sudden or gradual. The aspect of the patients is in many cases sufficiently typical to suggest the true diagnosis. The face is puffy, especially about the eyelids; the eyes are watery, and in some cases there is even subconjunctival edema, while the vessels are congested even to the degree of hemorrhage. The color of the face varies from crimson to dusky-red or even coppery. At first the patient, like Agag, "walks delicately," as though his soles were sore; in later stages there is the typical steppage-gait. The voice is often husky. The skin lesions are often multiple, and invariably present in some degree. Erythromelalgia is perhaps the most constant; in the feet the soles were crimson-colored, not as a rule uniformly, but chiefly at the parts where the sole comes in contact with the ground. A similar condition is found in the hands, most marked on the thenar and hypothenar eminences, and on the palmar surfaces of the terminal phalanges, the center of the palm being normal in color; the soles and palms are more or less bedewed with perspiration. They are tingling, burning hot, and painful, so that the patient bares them for the sake of coolness, and cannot abide even the pressure of the bedclothes.

This erythema does not become pigmented, but passes on to keratosis; this is a very slow and stubborn process. It may occur in the form of a few isolated patches; sometimes these patches appear on the dorsum of the hand, between the webs of the fingers, and on the knuckles, or the whole palm or sole may be thickly covered with large grayish scales, which are being constantly shed. The soles are almost always worse than the palms. Keratosis in the absence of pigmentation is often a valuable feature in the diagnosis from alcoholic neuritis. Other erythemata occur, of varied character and often very irritating; scarlatiniform and morbilliform rashes may be seen on the trunk and limbs, and not infrequently an acute urticaria. Vesicular eruptions in which the lesions vary in size from a pin's head to large bullæ several inches in diameter are a late form of rash, and may come on as much as six weeks after the last glass of beer has been taken.

Pigmentation does not generally occur in light-complexioned patients, or merely amounts to a darkening of preexisting freckles; in dark subjects it is invariably found. It usually follows slowly upon the erythematous blush by a slow process of transformation from red to bronze or even black. It spares, however, the palms and soles, even though universal elsewhere; nor as a rule does it touch old scars in which the corium has been destroyed, but is peculiarly intense around the edges. Where pigment is normally marked, and at sites of pressure, pigmentation as in Addison's disease is marked; the buccal mucous membrane is not affected. On the whole pigmentation is more marked on the trunk than the face; sometimes on close examination it is seen to be punctiform. Besides this uniform pigmentation, there is sometimes a patchy distribution with intervening portions of lighter skin; these isolated patches may, however, coalesce so as ultimately to produce a uniform and universal pigmentation. After many weeks the pigmented skin may undergo a branny desquamation, when if the pigmented flakes be rubbed off a healthy skin is left underneath. This sequence of events strongly suggests that the pigmentation is a cutaneous dystrophy and not a deposit of arsenic in the skin.

Herpes occurred in a small number of cases, and most commonly in the distribution of the cervical or dorsal nerves. It was never bilateral, and in no single case was seen below the knee or below the elbow. Dr. Reynolds considers that it is due to

direct action of the arsenic on the posterior spinal ganglia, and fancies that the epidemics of so-called specific herpes are really referable to arsenic. This view concords with the habitual neuralgic pain that precedes the eruption of herpes. The nails often bear evidence of malnutrition in the presence of transverse white ridges; proximal to these the nail is normal, but beyond them white, cracked, and thin, so as to be almost papery.

In the nervous system, sensory affections have been present in practically all the cases; in the mildest mere paresthesia of the distal parts of the limbs, with tingling and numbness, but never total loss of sensation; neuralgic pains were common. In only one case was a cranial nerve affected, viz., the sensory portion of the fifth nerve. The muscle masses of the legs and arms were usually intensely painful on pressure. On the motor side the symptoms were akin to those of alcoholic paralysis, and were present in as many as seventy per cent of all cases. In mild cases slight weakness of hands and feet without muscular atrophy, and in severe cases total paralysis of the affected muscles with marked atrophy; in less severe cases the small distal muscles only, while in severe cases even the muscles of the upper arm and thigh were extensively affected. Frequently the muscles on the front of the trunk were weak, so that the patients could not raise themselves in bed, and in some severe cases there was diaphragmatic paralysis, with labored breathing and a markedly ineffective power to cough. Only in the most advanced cases was there any paralysis of the sphincters.

Mental disturbances were not a prominent feature; in some very severe cases there was, as in alcoholic paralysis, a complete loss of memory of time and of place. There was also a loss of initiation of ideas, so that the patient grasped greedily at any suggestion from another. This comparative mildness of mental symptoms would in cases otherwise severe give an important clue in diagnosis from alcoholic paralysis.

In the circulatory system weakness of the heart muscle producing various grades of disturbance and dilatation was most noticeable; this may be assigned to the arsenic quite independently of the alcohol. Edema affecting the feet, or in some cases the whole body, was commonly found. Ascites was sometimes present in fair amount, but pericardial and pleural effusions, when present, were usually less than occur in beriberi. Heart failure was the commonest cause of death.

In the respiratory system generalized catarrh is the rule: thus the husky voice is due to congestion and not to paralysis of the cords; the degree of congestion was occasionally enough to produce hemoptysis. In some of the cases there was evidence to show that in these toxic doses preexisting phthisis was intensified by arsenic.

Digestive symptoms in many cases ushered in the other troubles. In mild cases the appetite was sometimes definitely increased, while in severe cases loss of appetite and vomiting immediately after taking food were the rule. In early stages the tongue had a silvery film like a wash of lunar caustic, but in later stages was brown, but still moist; sometimes the gums were red and softened. There was at least a suspicion that the arsenic in some cases had induced hepatic cirrhosis. Arsenic was detected in some cases in the urine. Elevation of temperature, more commonly in the early stages, with catarrhal symptoms, has sometimes suggested a diagnosis of influenza.

Treatment, beyond stopping the intake of the poison, is mainly directed to counteracting complications. The tendency to heart failure precludes the employment of any depressing remedies, and digitalis and strychnine are for the same reason indicated. Pain is sometimes sufficient to call for morphine, and the burning sensation of the extremities may be relieved by spirit lotion. The neuritis is treated by the usual routine methods.

Dr. Brownlie speaks highly of ichthyol in erythema nodosum, in the following form:

℞ Ichthyol ammon., ʒ ij;
Sp. vini rect.,
Ætheris, āā ʒ iij.
Ft. mistura. Signa: "The Paint."

The spirit and ether are first mixed together and then the ichthyol added, else an insoluble deposit is formed. The application speedily relieves the burning pain. I can personally testify to the efficacy of an almost identical paint consisting of a drachm of ichthyol in an ounce of collodion.

AMMONIUM CHLORIDE BY INHALATION.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: On looking through some of the back numbers of the THERAPEUTIC GAZETTE, on page 156 of the March, 1900, number, a paper by James Ballard, M.D., on the use of nascent ammonium chloride in the

treatment of phthisis caught my eye. The remedy, I need hardly say, is an old one, and properly used is a very valuable one, particularly in chronic bronchitis, and I am glad that Dr. Ballard has in the pages of your widely circulated journal called to it the attention of whom it may concern.

But the method as applied by him is open to criticism. As he does it, the presence of common salt is useless; the free hydrochloric acid needed to combine with the ammonia being wholly furnished by the added acid. If he would decompose the salt with sulphuric acid he would find an amount of free hydrochloric acid, and a consequent supply of the nascent chloride, that would surprise him.

Some twenty-five or twenty-six years ago, during some laboratory work, it became necessary to add ammonia in excess to several beakers containing a certain solution in hydrochloric acid, and as often happens in badly ventilated rooms, the laboratory was soon filled with the nascent salt in question. It occurred to me that that would be a much better way of exhibiting it therapeutically than the inhalers in common use, and not long after I suggested to a medical friend, who had a bad case of chronic bronchitis on his hands at the time, to make use of this nascent salt by filling the patient's room with it and requiring him to live in it, and thus to inhale it morning, noon, and night until relieved. It was managed in this way: In a soup plate was poured, by guess, three or four ounces of strong sulphuric acid, and into a saucer (used to distinguish it from the acid container) was poured about two ounces of the strong ammonia, and immediately there was sprinkled upon the acid about a tablespoonful of common salt. In less than a minute the room was full of a dense cloud of the nascent salt, which was kept up for days by needed renewals of the charge. The patient made a rapid and permanent cure. This was a beginning. I explained the process to a large number of physicians, and it has been in use here ever since, and the results attained have been surprising. During the twenty-five years that have elapsed since the first cure was made, I have received from doctors and laymen hundreds of letters—some asking for written instructions, others to thank me for this mode of utilizing this very valuable drug.

Results beyond my expectation had been reached by its use in other directions.

One well known doctor always uses it in asthma, with great benefit to the patient, in the majority of cases. Another, a couple of years ago, told me that he had used nothing else in whooping-cough for more than twenty years, and invariably with success. Not long ago, calling on one of my oldest professional friends, he said he wanted to tell me a story; it was as follows: "Fourteen or more years ago I was called to see a very sick young man, the only son of his widowed mother. On going to his room my olfactory nerves were greeted with the foulest stench they ever encountered. I found it came from his sputum. An examination of his lungs (which revealed a cavity in one of them) concluded, I hastened from the room, followed by his weeping mother. Feeling sure that the patient's end could not be far off, my first impulse was to so inform his mother, but her imploring look and urgent entreaty to do something for her son led me to reflect that by giving her something to do I might at least give her some relief from her great anxiety for a short time. So I went to a drug store, bought the necessary acid and ammonia, returned to the house, and instructed the poor woman how to manage the 'fumes' as it is called. About a week after I called to see how the patient was getting on. To my surprise I found a great change in the character of the sputum, and among other changes for the better, it was odorless. In a few weeks the patient was up and dressed when I called, and not long after he was working at his trade again, practically well. Now I want to show you a photograph of my patient as he is to-day." It was a picture of a second Sandow, now a professional baseball player.

When we consider that the nascent ammonium chloride is in a state of almost infinite division, it must be clear that the amount of the salt inhaled from an inhaler, as generally used, could only be successfully weighed upon a delicate balance, and it is not at all surprising that the inhaler is seldom heard of now. But where the inspirations are carried on for hours, days, and in bad cases for weeks at a time, the case is different and success certain—in chronic bronchitis and in colds after the acute stage has passed.

Very sincerely yours,

M. M. Mew.

Laboratory of the Army Medical Museum, Washington, D. C.